United States Department of Agriculture

NRCS

Natural Resources Conservation Service

In cooperation with Illinois Agricultural Experiment Station

Soil Survey of Coles County, Illinois

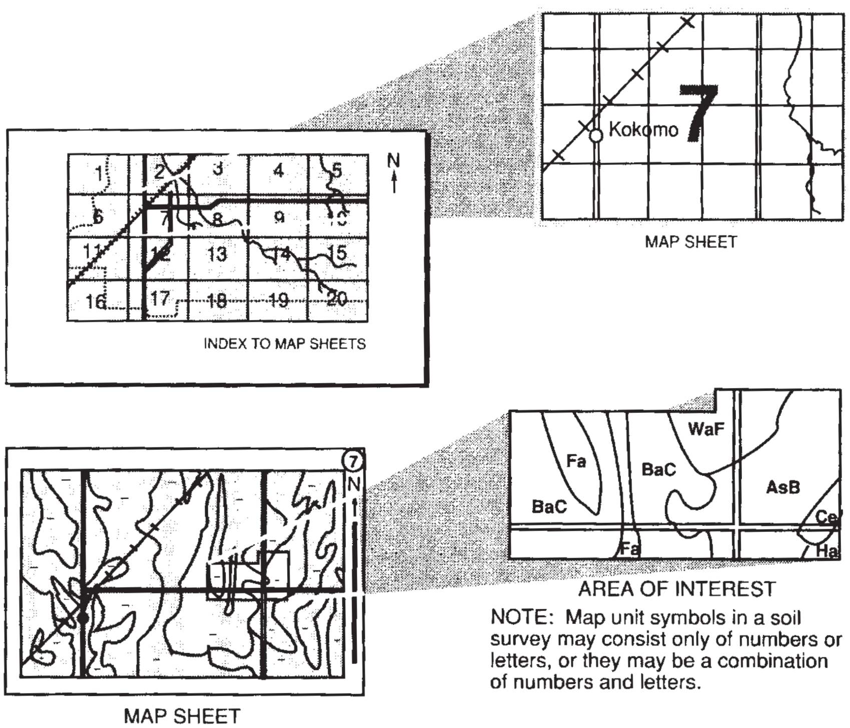
How To Use This Soil Survey

This publication consists of a manuscript and a set of soil maps. The information provided can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



National Cooperative Soil Survey

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey. This survey was made cooperatively by the Natural Resources Conservation Service and the Illinois Agricultural Experiment Station. It is part of the technical assistance furnished to the Coles County Soil and Water Conservation District.

Major fieldwork for this soil survey was completed in 2005. Soil names and descriptions were approved in 2006. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2005. The most current official data are available on the Internet.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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Cover Photo Caption

The 1840s home of Thomas and Sarah Bush Lincoln, father and stepmother of the 16th President of the United States, Abraham Lincoln, at the Lincoln Log Cabin State Historic Site. The two-room replica of the Lincoln cabin is in an area of Xenia silt loam, 2 to 5 percent slopes.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

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Issued 2008

Numerical Index to Map Units

Foreword

Soil surveys contain information that affects land use planning in survey areas. They include predictions of soil behavior for selected land uses. The surveys highlight soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

Soil surveys are designed for many different users. Farmers, foresters, and agronomists can use the surveys to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the surveys to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the surveys to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each map unit is shown on the detailed soil maps. Each soil in the survey area is described, and information on specific uses is given. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

William J. Gradle
State Conservationist
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Soil Survey of
Coles County, Illinois

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Updated fieldwork by Christopher Cochran, Troy Fehrenbacher, Zach Weber, and Ron Collman, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with the Illinois Agricultural Experiment Station

Coles County is in east-central Illinois (fig. 1). It has an area of 326,445 acres, or about 509 square miles. The county is bordered on the north by Douglas County, on the west by Moultrie and Shelby Counties, on the south by Cumberland County, and on the east by Edgar and Clark Counties. In 2004, the population of Coles County was estimated at 51,460. This estimate represents a decrease in population of about 3.3 percent from 2000 to 2004. Charleston, the county seat and largest city in the county, had an estimated population of 20,201 in 2005 (U.S. Department of Commerce, 2006).

The survey area is a subset of Major Land Resource Areas (MLRAs) 108A, Illinois and Iowa Deep Loess and Drift, Eastern Part, and 113, Central Claypan Areas (USDA/NRCS, 2006).

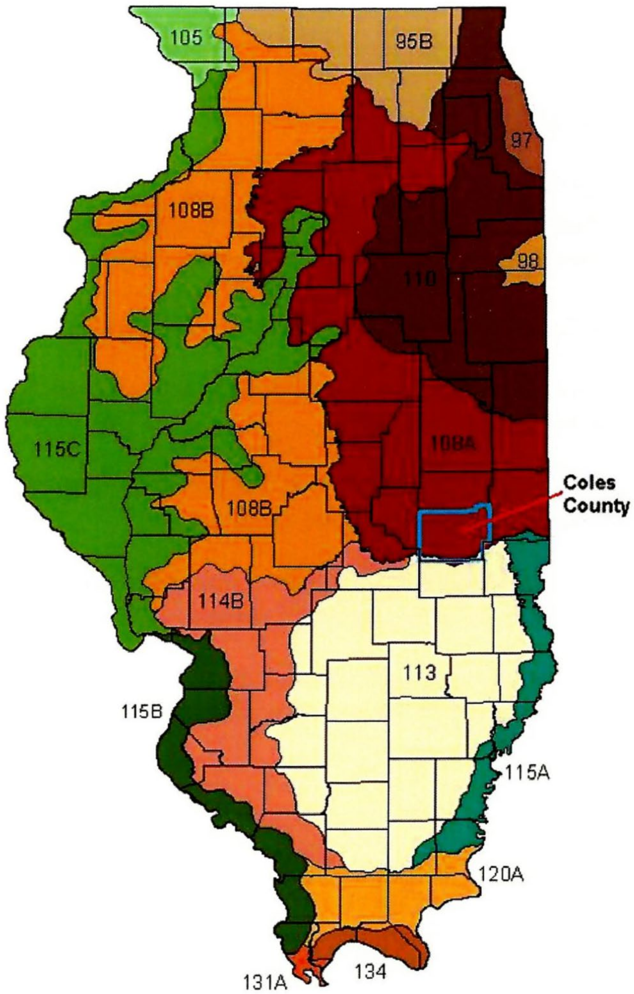
This soil survey updates the previous surveys of Coles County published in 1993 and 1929 (Hamilton, 1993; Smith and others, 1929). It provides additional information and has larger maps, which show the soils in greater detail.

General Nature of the County

This section provides general information about Coles County. It describes history and development; physiography, relief, and drainage; natural resources; and climate.

History and Development

Illinois Indian tribes, such as the Kaskaskia and Cahokia, were among the first people to inhabit the survey area. Their numbers were depleted following wars with neighboring Iroquois Indians in the 1680s. Northern tribes, such as the Sauk, Fox, Kickapoo, and Potawatomi, waged wars against the Illinois in the late 1700s and killed or drove all but a remnant from most of the state. Several Indian battles were purportedly fought in present-day Coles County in 1815 and again in 1818. The last of the surviving Illinois Indians settled near Kaskaskia, Illinois. The Indian Removal Act of



LEGEND

95B—Southern Wisconsin and Northern Illinois Drift Plain
97—Southwestern Michigan Fruit and Truck Crop Belt
98—Southern Michigan and Northern Indiana Drift Plain
105—Northern Mississippi Valley Loess Hills
108A and 108B—Illinois and Iowa Deep Loess and Drift
110—Northern Illinois and Indiana Heavy Till Plain
113—Central Claypan Areas
114B—Southern Illinois and Indiana Thin Loess and Till Plain, Western Part
115A, 115B, and 115C—Central Mississippi Valley Wooded Slopes
120A—Kentucky and Indiana Sandstone and Shale Hills and Valleys, Southern Part
131A—Southern Mississippi River Alluvium
134—Southern Mississippi Valley Loess

Figure 1.—Location of Coles County and the major land resource areas (MLRAs) in Illinois.

1830 provided funds for President Andrew Jackson to conduct land-exchange treaties with Indian tribes. In 1832, following the Black Hawk War, the remaining Indian tribes in the state participated in the land exchange and moved to what are now the states of Kansas and Oklahoma (Access Genealogy, 2006).

In 1824, the first settlers arrived in the survey area and settled along the eastern bank of the Embarras River. Coles County was set off from Clark County and established on December 25, 1830. At that time, Coles County included the areas that are now Cumberland and Douglas Counties. On February 8, 1859, Coles County assumed its current shape when Douglas County separated from it. The county was named after Edward Coles, the second Governor of the State of Illinois (Illinois GenWeb Project, 2005).

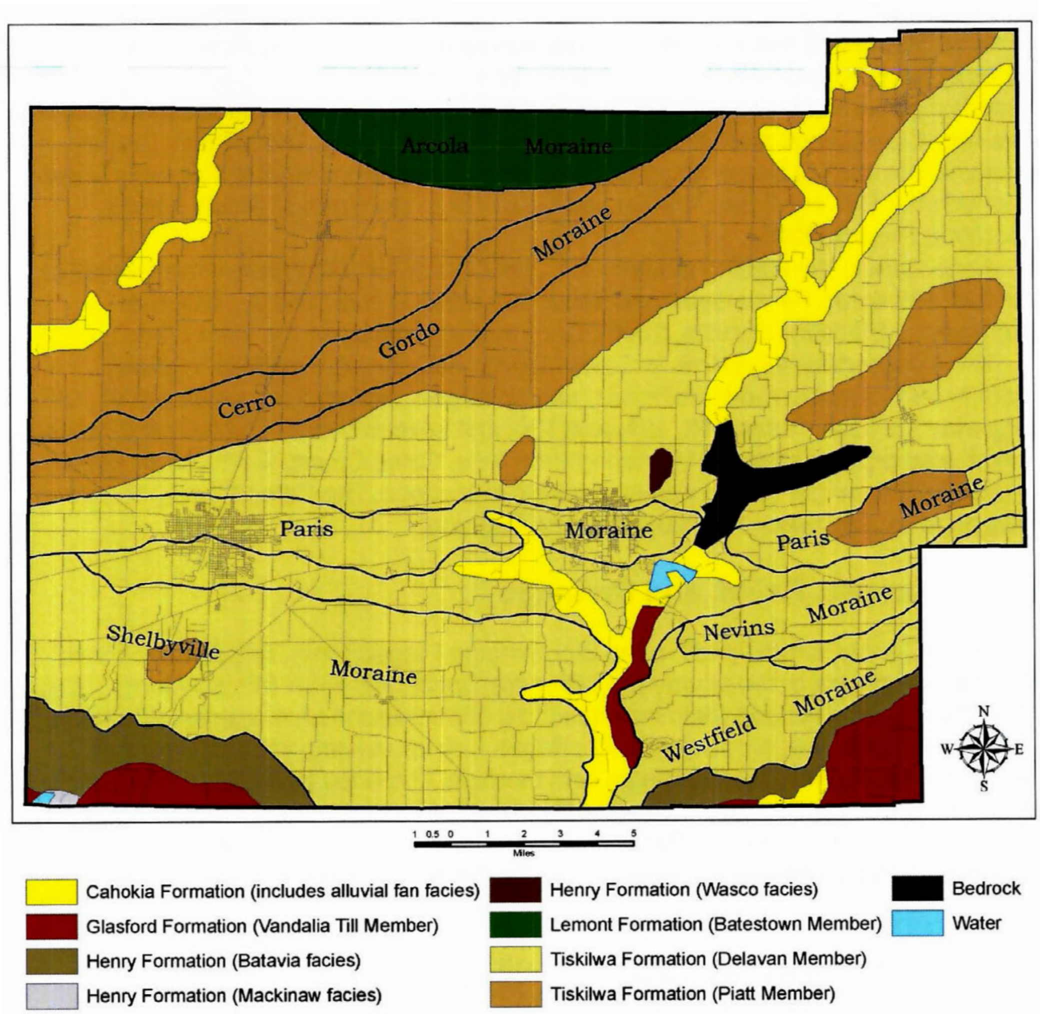
Agriculture is the leading industry in Coles County. In 2002, there were 684 farms on 261,138 acres. Farms averaged about 382 acres in size (USDA, National Agricultural Statistics Service, 2006). Corn and soybeans are the main crops (fig. 2).

The transportation systems in Coles County include U.S. and State highways, county and township roads, railroads, and an airport. Included are Interstate 57; U.S. Highway 45; State Routes 16, 121, and 130; and several county and township roads, which also provide important transportation links. Coles County is served by several railroads. Passenger rail service is available in Mattoon. The Coles County Memorial Airport is located between Charleston and Mattoon.

Physiography, Relief, and Drainage

Coles County is mostly within the Bloomington Ridged Plain. The southeast and southwest corners of the county are within the Springfield Plain (MacClintock, 1929). The Bloomington Ridged Plain includes most of the Wisconsin moraines, which are characterized by low, broad concentric ridges with intervening wide stretches of relatively flat or gently undulating ground moraine. The outer boundary of the district follows the outer border of the Shelbyville and Westfield moraines. From south to north in the county are the Nevins, Paris, Cerro Gordo, and Arcola moraines (fig. 3). The Springfield Plain includes the level part of the Illinoian drift-sheet in central and

Figure 2.—No-till soybeans in an area of Raub silt loam, 0 to 2 percent slopes.



Sources: Data layers modified by USDA-NRCS from IDNR-IGIS 2-volume set of Digital Data of Illinois (1996). Quaternary deposit information based on ISGS 1984 digital representation of Quaternary Deposits of Illinois map by Lineback (1979). Formations renamed based on ISGS Bulletin 104: Wedron and Mason Groups, by Hansel and Johnson (1996).

Figure 3.—Quaternary geology in Coles County, Illinois.

southern Illinois. It is distinguished mainly by its flatness and shallow entrenchment of drainage (Leighton and others, 1948).

During the Pleistocene, glaciers covered Coles County. Most of the present surface materials and landforms are the result of the glacial ice, glacial meltwater, and wind passing over the landscape during the most recent glacial episodes of the Wisconsinan and the Illinoian (Piskin and Bergstrom, 1975).

During the Illinoian Episode, glaciers deposited till ranging from several feet to as much as 100 feet thick over Pennsylvanian sandstone, shale, and limestone throughout the county. The till is known as the Vandalia Till Member of the Glasford Formation. It is a gray sandy till with thin lenticular bodies of silt, sand, and gravel. It is calcareous, except where weathered. The till averages 25 to 50 feet in thickness. The Sangamon Geosol developed in this material.

During the Wisconsinan Episode, glaciers again crossed over the county, depositing till as they advanced and outwash as they retreated. The till deposited during this episode in Coles County is characterized by the Tiskilwa and Lemont Formations. The outwash is characterized by the Henry Formation.

The Tiskilwa Formation is the oldest and lowermost diamicton unit of the Wisconsinan Episode. The formation is divided into the Delavan and Piatt Members. The Delavan Member, formerly classified as Fairgrange Till, consists of calcareous, brown gray loam diamicton that contains lenses of gravel, sand, silt, or clay. The average thickness in Coles County is 40 to 60 feet. The Delavan Member was deposited between 26,000 and 18,500 years ago. The Piatt Member consists of gray loam diamicton containing lenses of sorted sediment. It is sandier, grayer, and more illitic than the underlying Delavan Member. The average thickness of this member in Coles County is similar to that of the Delavan Member. The Piatt Member was deposited 19,000 to 18,500 years ago (Hansel and Johnson, 1996).

The Lemont Formation overlies the Tiskilwa Formation. The till in the Lemont Formation, although quite varied over its entire extent, tends to be grayer, more silty, and more illitic than the till of the Tiskilwa Formation. This formation is not as thick as the Tiskilwa Formation and contains fewer far-traveled erratics. The Lemont Formation is divided into three members: the Batestown, Yorkville, and Haeger Members. Only the Batestown Member is represented in Coles County. The Batestown Member consists of calcareous gray loam diamicton. The thickness of the Batestown Member in Coles County is about the same as that of the Delavan and Piatt Members. The Batestown Member was deposited about 18,500 to 17,700 years ago (Hansel and Johnson, 1996).

The Henry Formation is defined as glacial outwash, predominantly sand and gravel, that occurs above the Sangamon Geosol and is either at or near the surface or overlain by loess (Willman and Frye, 1970). A broad, coarse textured terrace system, known as the Mackinaw facies of the Henry Formation, extends south out of the county parallel to the present-day Little Wabash River (Hansel and Johnson, 1996). These sand and gravel valley train sediments were deposited predominantly during the late Wisconsinan Episode meltout. As the Wisconsinan glaciers were retreating from northern Illinois, a large volume of sediment-laden water moved down the preglacial Wabash River valley and deposited sand and gravel across the former flood plain for many miles. These present-day terraces provide a very good mineral resource for sand and gravel. An ice-contact deposit of sand and gravel in the form of a kame or esker, known as the Wasco facies of the Henry Formation, is located just northeast of Charleston. This area is pockmarked with small played-out gravel pits, which undoubtedly served as a source of sand and gravel for building Charleston and the surrounding roads and railroads. The Batavia facies of the Henry Formation is characterized by upland outwash plains that form a skirt, 1 to 3 miles wide, all along the leading edge of the terminal moraine of the Wisconsinan Episode (Hansel and Johnson, 1996). The outwash is typically stratified sand, silt, and gravel.

Peoria Silt, also known as windblown silt or Richland loess, covers most of the uplands in the county. This material overlies both till and outwash and is as much as 5 feet thick. The surface of this formation typically coincides with the surface of the modern soil. It was deposited over an 8,000-year period, 20,000 to 12,000 years ago.

The Cahokia Formation consists mainly of poorly sorted silt, clay, and silty sand. Its thickness varies greatly but generally does not exceed 50 feet. It typically occurs on modern flood plains. The surface of the formation commonly is the surface of the flood plain and the modern soil. In places it is overlain by windblown sand, loess, or colluvium from side slopes (Willman and others, 1975).

Bedrock outcrops occur along the Embarras River and Polecat Creek northeast of Charleston (fig. 4). Pennsylvanian limestone is currently being quarried near this area.

The relief in Coles County is low in the nearly level and gently sloping uplands. The greatest change in relief is in areas along major drainageways and terminal moraines, where a drop in elevation of more than 75 feet from the adjacent uplands can occur.

Figure 4.—An outcrop of shale and sandstone along Polecat Creek.

The highest elevation in the county, slightly more than 780 feet above sea level, is about 2 miles south-southeast of the city of Mattoon on the Shelbyville Moraine. The lowest elevation is approximately 550 feet above sea level at the point where the Embarras River drains into Cumberland County. The elevation cross-section in figure 5 depicts topographic changes along a straight line across the county from the northwest corner to the southeast corner. The geological materials and their thicknesses are drawn in for illustrative purposes and do not represent actual measurements taken along this transect.

The Kaskaskia, Embarras, and Little Wabash Rivers drain most of the county (fig. 6). The Kaskaskia River flows west-southwest and empties into Lake Shelbyville. The Embarras River ultimately drains into the Wabash River in Lawrence County. The Little Wabash River drains into the Wabash River in Gallatin County.

The flood plains along these rivers and their tributaries generally are flooded annually, and most of the soils in these areas have a seasonal high water table.

Most areas are sufficiently drained for the crops commonly grown in the county. Subsurface tile drains have been installed in fields across the county.

Natural Resources

Oil, sand and gravel, and limestone are the primary mineral resources being extracted in Coles County. At present, coal is not commercially produced in Coles County. Oil production began in 1906, and oil continues to be a valuable mineral resource in the county (fig. 7). In 2004, 44,500 barrels of oil valued at more than $1,500,000 were extracted from five proven fields. The total production over a 100-year span has been 26,500,000 barrels (Illinois State Geological Survey, 2006).

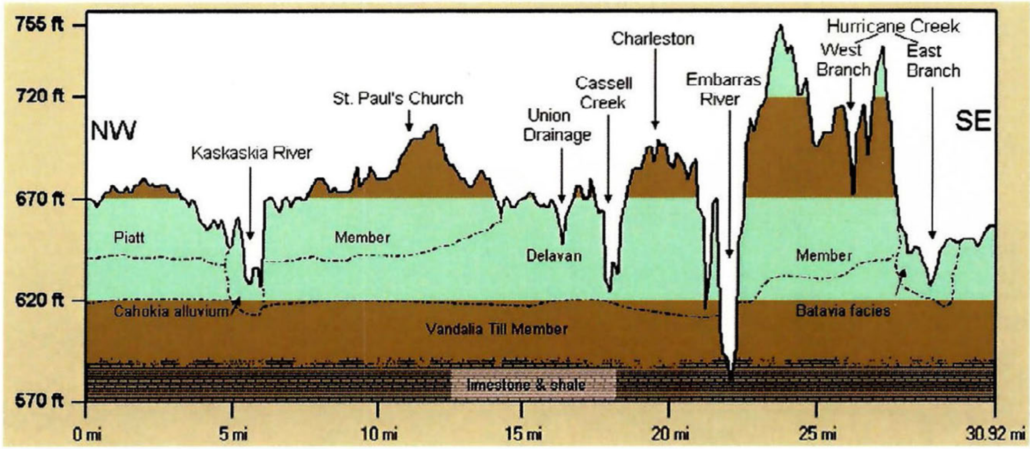


Figure 5.—Elevation cross-section of Coles County, Illinois. Source: 3-D TopoQuads. Copyright 1999, DeLorme, Yarmouth, ME 04096; Datum NAD 27.

Soil is a major natural resource in Coles County. Natural fertility in the soils ranges from low to high. With the additions of fertilizers and lime, most of the soils are well suited to the cultivation of crops, particularly corn and soybeans. Many of the soils are nearly level or gently sloping and formed in medium textured material under prairie grass or under forest vegetation or mixed forest and grass. Combined with a favorable climate, these factors result in good potential for highly productive farmland.

At the time of settlement, about 32 percent of the county was forested (Iverson and others, 1989). About 39,000 acres in Coles County still supports woodland. Most of the

Figure 6.—A spillway on the Embarras River helps to control erosion. Oak and hickory are in an area of Senachwine soils on the far bank.

Figure 7.—This oil well is in an area of Raub and Drummer soils.

woodland is along the major streams and their tributaries. The areas that are still wooded are mainly areas that are not well suited to farming because of the slope, low fertility, or a shallow depth to bedrock. The woodland in the county provides important wildlife habitat, watershed protection, and recreational areas.

The county has approximately 1,550 acres of impounded water. Lake Charleston, the largest single body of impounded water, makes up about 346 acres of this total. Lake Paradise is 166 acres. Lake Mattoon is 1,050 acres, about 120 acres of which is in Coles County. The remaining 918 acres of impounded water is in about 600 small lakes and farm ponds scattered throughout the county or in gravel pit ponds along the Embarras, Kaskaskia, and Little Wabash Rivers.

About 25 percent of the county is underlain by sand and gravel aquifers in the fill of river valleys or in buried valleys and potential aquifers in areas where till is thick (Illinois State Geological Survey, 2006). These areas are mostly tapped for private water supplies for small municipalities and rural residents. The city of Charleston uses surface water from Lake Charleston, and the city of Mattoon uses surface water from Lake Paradise (Illinois Environmental Protection Agency, 2005).

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Charleston in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 30.4 degrees F and the average daily minimum temperature is 22.3 degrees. The lowest temperature during the period of

record, which occurred at Charleston on January 19, 1994, was -27 degrees. In summer, the average temperature is 74.4 degrees and the average daily maximum temperature is 84.6 degrees. The highest temperature, which occurred at Charleston on July 14, 1936, was 110 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation is about 41.8 inches. Of this total, about 26.7 inches, or 64 percent, usually falls in April through October. The growing season for most crops falls within this period. The heaviest 1-day rainfall on record was 6.5 inches at Charleston on June 28, 1957. Thunderstorms occur on about 48 days each year, and most occur between April and August.

The average seasonal snowfall is 23.1 inches. The greatest snow depth at any one time during the period of record was 24 inches recorded on January 7, 1996. On an average, 30 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall during the period of record was 12 inches recorded on January 30, 1982.

The average relative humidity in midafternoon is about 52 percent in May and June and about 70 percent in December. Humidity is higher at night, and the average at dawn is about 84 percent in most months. The sun shines 70 percent of the time possible in summer and 48 percent in winter. The prevailing wind is from the south, except in January, February, and March, when it is from the northwest. Average windspeed is highest, around 13 miles per hour, in March.

How This Survey Was Made

Land resource regions (LRRs) and their component major land resource areas (MLRAs) serve as a basis for making decisions about national and regional agricultural and natural resources concerns. These land categories group geographical areas that are characterized by a particular pattern of soils, climate, water resources, and land use. Major land resource areas are geographically associated land resource units that share a common land use, elevation, topography, climate, water, soils, and potential natural vegetation (USDA/NRCS, 2006). Coles County is in the Central Feed Grains and Livestock Land Resource Region and in MLRAs 108A, Illinois and Iowa Deep Loess and Drift, Eastern Part, and 113, Central Claypan Areas (fig. 1).

Soil surveys are updated as part of maintenance projects that are conducted for an MLRA or other region. Maintaining and coordinating soil survey information within a broad area result in uniformly delineated and joined soil maps and in coordinated interpretations and map unit descriptions for areas within each MLRA.

Updated soil survey information is coordinated within the MLRA or other region and meets the standards established and defined in the memorandum of understanding. Soil surveys that are consistent and uniform within a broad area enable the coordination of soil management recommendations and a uniform program application of soil information.

The current survey was made to provide updated information about the soils and miscellaneous areas in Coles County. Map unit design and the detailed soil map unit descriptions are based on the occurrence of each soil throughout the MLRAs. The information in this survey includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses.

Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; and the kinds of crops and native plants. They studied the soil

profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landform.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

The soil survey information in this report was based on a review of field notes, laboratory data, and other data collected during the previous soil survey of Coles County (Hamilton, 1993). In addition, data from other soil surveys within MLRAs 108A and 113 were reviewed, and selected soils were resampled to a greater depth than in

previous surveys. Reviewing data on a regional basis results in improved consistency in the identification and classification of soils on similar landscapes and in more consistent interpretation of soil properties.

Aerial photographs used in this survey were taken in 1998 and 1999. Soil scientists also studied U.S. Geological Survey topographic maps (enlarged to a scale of 1:12,000) and orthophotographs to relate land and image features. Specific soil boundaries were drawn on the orthophotographs. Adjustments of soil boundary lines were made to coincide with the U.S. Geological Survey topographic map contour lines and tonal patterns on aerial photographs.

Formation and Classification of the Soils

This section relates the soils in the survey area to the major factors of soil formation and describes the system of soil classification.

Formation of the Soils

Soil is produced by soil-forming processes acting on materials deposited or accumulated by geologic agents. The characteristics of the soil are determined by (1) the physical and mineralogical composition of the parent material; (2) the climate under which the soil formed; (3) the plant and animal life on and in the soil; (4) the relief, or lay of the land; and (5) the length of time the forces of soil formation have acted on the parent material (Jenny, 1941).

Climate and plant and animal life are the active factors of soil formation. They act directly on the parent material, either in place or after it has been relocated by water, glaciers, or the wind. They slowly change the parent material to a natural body that has genetically related layers, or horizons. The effects of climate and plant and animal life are modified by relief. In sloping areas, for example, erosion can inhibit the processes of soil formation. Wetness can slow these processes in level areas or depressions. Parent material also affects the kind of soil profile that is formed. Finally, time is needed for changing the parent material into a soil profile that has clearly differentiated horizons.

The factors of soil formation are so closely interrelated in their effects on the soil that few generalizations can be made regarding the effects of any one factor unless the effects of the other factors are known. Many of the processes of soil formation are unknown.

Parent Material

Parent material is the unconsolidated geologic material in which a soil forms. It determines the chemical and mineralogical composition of the soil. Most of the parent material in Coles County is a direct result of the glaciers and sediments of the Illinoian and Wisconsinan Age (Willman and Frye, 1970). Although the kinds of parent material are associated with glacial deposits, the properties vary greatly, mostly because of varying methods of deposition. The dominant kinds of parent material in Coles County are till, outwash, loess, and alluvium. These materials were deposited by wind, water, glaciers, or glacial meltwater. In some areas, the materials have been reworked by wind or water after they were deposited. Many of the soils formed in more than one kind of parent material. For example, many of the soils in Coles County formed in loess and in the underlying sediment or till (fig. 8).

Till is material laid down directly by glaciers. It consists of clay, silt, sand, gravel, and boulders, all of which are mixed together. The gravel has distinct edges and corners, indicating that it has not been subjected to intensive washing by water. Unweathered till is generally alkaline, calcareous, and very dense. Through the processes of soil formation, the upper 1 to 2 meters of the till that is exposed to biological activity becomes less alkaline and less dense. Senachwine soils are examples of soils that formed in till.

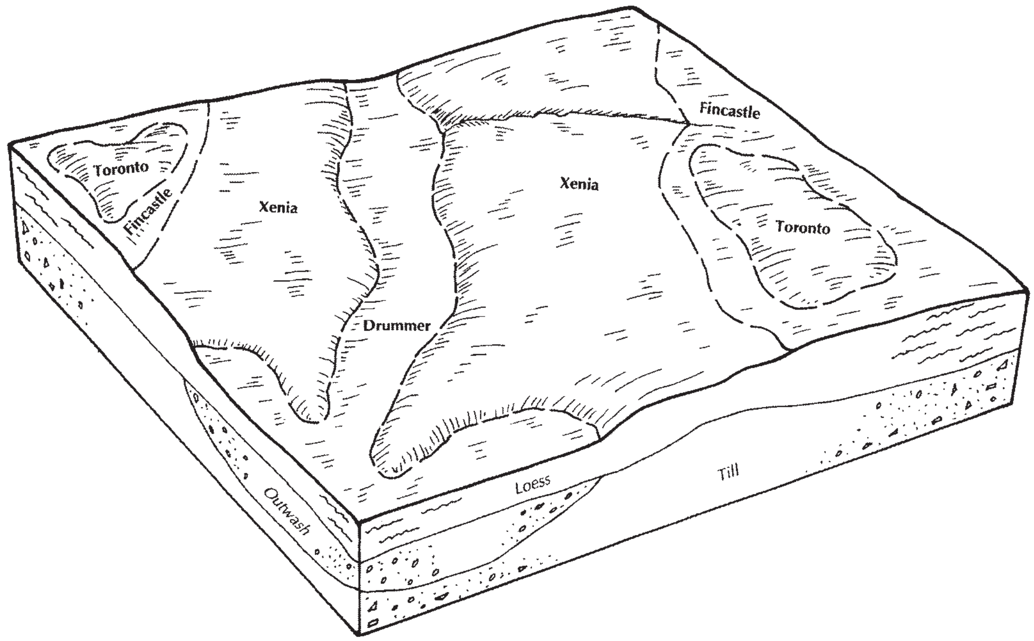


Figure 8.—A typical relationship between soils and landscape in Coles County, Illinois.

Outwash is stratified material deposited by flowing glacial meltwaters. The size of the particles that make up outwash varies, depending on the velocity of the moving water. Typically, outwash is dominated by material that is fine sand or coarser. The coarser material was deposited nearer to the ice or in rapidly moving glacial meltwater streams. Most of the outwash deposits were later covered by loess. In Coles County, coarse outwash material is in glacial valley areas now dominated by stream terraces or on small kames or eskers. Stratified, medium textured outwash material was deposited in an outwash plain all along the leading edge of the Shelbyville and Westfield moraines. Martinsville and Millbrook soils are examples of soils that formed in outwash. These soils commonly occur on stream terraces or outwash plains.

Loess is material deposited by the wind. It consists of uniform, silt-sized particles that were typically calcareous before being acted upon by soil-forming factors. The meltwaters from the glaciers carried vast quantities of silt, which were deposited in the major river valleys. As these sediments were exposed when the meltwaters subsided, the winds carried the silts and deposited them over much of the land. Most of the soils in the county formed at least partially in loess. The thickness of the loess varies greatly, ranging from virtually none in areas where slopes are very steep to more than 50 inches on the Springfield Plain in the southeast and southwest corners of the county. Hoyleton, Cisne, Ebbert, and Shiloh soils are in these latter areas.

Alluvium is material that was deposited by floodwater from modern streams. Soils that formed in alluvium are generally stratified in both color and texture. The alluvial soils mostly consist of silty sediments, but in some places the soils have thin layers of loamy and sandy material. Brouillett, Landes, Shoals, and Wirt soils formed in loamy alluvium, and Lawson, Sawmill, and Tice soils formed in silty sediments. All of these soils occur on active flood plains and are relatively younger than many of the other soils in the county. Consequently, these soils have a weakly developed subsoil. The largest areas of alluvial soils are along the Embarras River and its tributaries.

Climate

Coles County has a temperate, humid, continental climate that is essentially uniform throughout the county. Climatic differences within the county are too small to have caused any obvious differences among the soils. In some areas of the county, the effects of climate are modified locally by relief. The influence of climate becomes more obvious, however, when comparisons are made on a broad regional basis.

Climate affects soil formation through its influence on weathering, plant and animal life, and erosion. Water from rains and melting snow seeps slowly downward through the soil and allows physical and chemical reactions to take place in the parent material. Where the water can move downward, it moves clay from the surface soil into the subsoil. Water also dissolves minerals and moves them downward through the soil. Leaching has removed calcium carbonate in the upper part of soils that formed in limy parent materials to a depth of more than 40 inches in most of the survey area. As a result, other pedogenic processes act on the soil, causing the biochemical breakdown of minerals and the translocation of clay to take place. In addition, with the removal of bases, these soils tend to be strongly or very strongly acid in the upper part.

The temperature of the soil affects soil formation. When the soil is frozen, for example, many of the processes of soil formation are halted or restricted.

Climate also influences the kind and extent of plant and animal life. The climate in Coles County has favored tall prairie grasses and deciduous hardwoods. It also has favored the decomposition of plants and animals, which provides humus to the soil.

Heavy, untimely rains can be destructive when they fall on soils that are bare of vegetation. The raindrops disperse the soil particles, thereby contributing to erosion and the formation of crusts. Increased runoff during early spring rains in these areas can cause extensive erosion.

Plant and Animal Life

Soils are greatly affected by the type of vegetation under which they formed. The chief contribution of vegetation and biological processes to soil formation is the addition of organic material and nitrogen to the soil. The amount of organic material in the soil depends primarily on the kind of native plants that grew on the soil. The remains of plants accumulated on or below the surface, decayed, and eventually became soil organic matter, or humus. The roots of the plants provided channels for the downward movement of water through the soil and added organic matter as they decayed.

The native vegetation in Coles County consisted primarily of tall prairie grasses and, to a lesser extent, deciduous hardwoods. At the time of early settlement, about 68 percent of the county supported prairie grasses (Iverson and others, 1989). These grasses have many fibrous roots that contributed large amounts of organic matter to the soil, especially where they were concentrated near the surface. Soils that formed under prairie vegetation have a thick, black or dark brown surface layer. They generally are in areas of low relief and/or in areas that were naturally poorly drained or somewhat poorly drained. Dana, Drummer, and Flanagan soils are examples of soils that formed on the prairie.

About 32 percent of the county supported timber at the time of early settlement (Iverson and others, 1989). The organic material that deciduous hardwoods contributed to the soil was mainly in the form of leaf litter because the root systems of the hardwoods were less fibrous than those of grasses and generally were not so concentrated near the surface. The soils that formed under forest vegetation have a surface layer that is thinner and lighter colored than that of the prairie soils. Bluford, Fincastle, Martinsville, and Senachwine soils are examples of soils that formed under

forest vegetation. These soils generally are along drainageways on summits, broad interfluves, and backslopes.

Micro-organisms, earthworms, insects, and burrowing animals that live in or on the soil have also affected soil formation. Bacteria and fungi help to decompose plant and animal remains and change them into humus. Burrowing animals, such as earthworms, cicadas, and ground squirrels, help to incorporate the humus into the soil and create small channels that influence soil aeration and the percolation of water. Humus is very important in the formation of soil structure and good tilth.

Human activities, such as installing subsurface drains, building levees for flood protection, constructing buildings and roads, and clearing the native forests, have significantly altered the nature of the existing plant and animal communities. These activities have also contributed to the loss of soil material and organic matter through accelerated erosion.

Relief

Relief (local changes in elevation) has markedly affected the soils in Coles County through its effect on runoff, erosion, deposition, and natural drainage. Relief includes landform characteristics, such as position on the landform, slope gradient, slope shape, and slope aspect.

Variations in relief in the county reflect the variety of landforms. The most extensive landforms in the county are ground moraines, end moraines, stream terraces, outwash plains, and flood plains.

Ground moraines generally consist of broad, nearly level and gently sloping interfluves. The relief on ground moraines is less variable than the relief along tributaries of major streams and rivers. The ground moraines are dominated by such soils as Dana, Raub, and Flanagan soils. Where ground moraine is incised by tributaries of major streams and rivers, such soils as Fincastle, Russell, and Xenia soils are common.

End moraines generally are strongly sloping to very steep. End moraines mark a point where the glacier halted its advance. Six major moraines extend from west to east across Coles County. Russell and Senachwine soils commonly occur on these landforms.

Stream terraces occur primarily along the Embarras, Kaskaskia, and Little Wabash Rivers and their tributaries. They are generally nearly level and gently sloping areas that lie above adjacent flood plains. Camden, Martinsville, and Starks soils occur on stream terraces in the county.

Outwash plains are nearly level to sloping landforms that generally occur at the leading edge of a moraine. Brenton, Drummer, Proctor, Thorp, and Somonauk soils are examples of soils on outwash plains.

In areas where the parent material is relatively uniform, differences in natural drainage are closely related to landform position, such as summit, backslope, or toeslope, and to slope gradient and slope shape. Drummer and Proctor soils, for example, both formed in loess and in the underlying outwash. Drummer soils are on toeslopes. The slopes are nearly level and are commonly concave. Precipitation and runoff from the higher adjacent soils contribute to the ponding of surface water on the poorly drained Drummer soils. The water in the saturated soil pores restricts the circulation of air in the soil. Under these conditions, naturally occurring iron and manganese compounds are chemically reduced. The reduced form of iron and manganese is more soluble than the oxidized form and can be leached readily from the soil, leaving the subsoil with a grayish color. Proctor soils, conversely, are well drained and are on gently sloping summits and backslopes that are convex. The water table is lower in the Proctor soils, and some of the rainfall runs off the more sloping

surface. The soil pores in the Proctor soils contain less water and more air. The iron and manganese compounds are well oxidized, resulting in a brownish subsoil.

Relief also affects the susceptibility to and intensity of both geologic and recent accelerated erosion. Soils on the steeper slopes and in areas where slopes are long are more susceptible to erosion than soils that formed in nearly level or level areas or where slopes are short. Maintaining a cover of vegetation or plant residue on much or all of the soil surface can significantly reduce the hazard of erosion caused by relief. For example, Senachwine soils that have slopes of 18 to 60 percent generally support trees, herbaceous plants, and grasses. Because of the vegetative cover, these soils are susceptible to little or no erosion. Most areas of Senachwine soils that have slopes of 5 to 18 percent are cultivated. Failure to maintain erosion-control systems on these soils has resulted in moderate or severe accelerated erosion of the surface soil. The loss of surface soil material in one place results in deposition and accumulation in another place, affecting both the rate of soil formation and the development and thickness of soil horizons.

Time

To a great extent, time determines the degree of profile development in a soil. The amount of time available for soil development is strongly influenced by the degree and amount of erosion or deposition of material at any given point in the county.

The differences among soils resulting from the length of time that the parent material has been in place are commonly expressed in the degree of profile development. Sawmill soils have a very weakly expressed profile because they are on low flood plains that periodically receive new alluvial sediments. Consequently, they have not been in place long enough for the development of distinct horizons. Thorp soils, however, which are on outwash plains, are more strongly developed than the Sawmill soils. They have distinct horizons because the loess and underlying outwash in which they formed have been in place a much longer time.

In most upland soils, enough time has passed to allow for the removal of calcium carbonate from the upper 40 or more inches of the profile through leaching. In sloping areas, however, geologic and recent erosion has kept pace with or has exceeded the rate of soil development. Calcium carbonate typically occurs closer to the soil surface in these soils as this leached upper mantle is eroded away. Soils in these areas, such as Senachwine soils, are calcareous within a depth of 40 inches.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 4 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol.* An example is Alfisols.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalfs (*Ud*, meaning humid, plus *alf*, from Alfisols).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons;

soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, active, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. An example is the Martinsville series.

Soil Series and Detailed Soil Map Units

In this section, arranged in alphabetical order, each major soil series recognized in the survey area is described. Each series description is followed by detailed descriptions of the associated soil map units.

Characteristics of the soil and the material in which it formed are identified for each soil series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 2003). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

In some instances, the typical pedon for the series is located outside Coles County. The selection of typical pedons is based on the range of characteristics for the series as it occurs throughout a particular major land resource area (MLRA). The Cisne series, for example, is common in MLRA 113 (Central Claypan Areas), which covers most of central and south-central Illinois. The typical pedon of the Cisne series is located in Jasper County, Illinois. The soil properties of this pedon are representative of the Cisne soils that occur not only in Jasper County but also in Coles County and other counties in MLRA 113.

The map units on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given under the headings "Use and Management of the Soils" and "Soil Properties."

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map

unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Somonauk silt loam, 2 to 5 percent slopes, eroded, is a phase of the Somonauk series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are called complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Drummer-Milford silty clay loams, 0 to 2 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, gravel, is an example.

Table 5 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

Bluford Series

Taxonomic classification: Fine, smectitic, mesic Aeric Fragic Epiaqualfs

Typical Pedon

Bluford silt loam, 0 to 2 percent slopes, at an elevation of 549 feet above mean sea level; Crawford County, Illinois; 1,585 feet south and 925 feet west of the northeast corner of sec. 16, T. 8 N., R. 13 W.; USGS Annapolis, Illinois, topographic quadrangle; lat. 39 degrees 08 minutes 22.7 seconds N. and long. 87 degrees 51 minutes 27.9 seconds W.; UTM Zone 16S, 0425872E 4332623N, NAD 83:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; very friable; few very fine roots; few fine rounded masses of iron and manganese accumulation throughout; neutral; abrupt smooth boundary.

E1—7 to 15 inches; light brownish gray (10YR 6/2) silt loam, white (2.5Y 8/1) dry; moderate medium platy structure; very friable; few very fine roots; many medium

distinct yellowish brown (10YR 5/4) and few medium faint brown (10YR 5/3) masses of iron and manganese accumulation in the matrix; common fine rounded masses of iron and manganese accumulation throughout; very strongly acid; clear smooth boundary.

E2—15 to 20 inches; pale brown (10YR 6/3) silt loam, pale yellow (2.5Y 8/2) dry; moderate medium platy structure parting to moderate very fine subangular blocky; very friable; few very fine roots; common prominent white (10YR 8/1) (dry) silt coatings on faces of peds; common medium faint grayish brown (10YR 5/2) iron depletions in the matrix; very strongly acid; clear smooth boundary.

Btg—20 to 35 inches; grayish brown (10YR 5/2) silty clay; moderate medium subangular blocky structure; firm; few very fine roots; common faint grayish brown (10YR 5/2) clay films on faces of peds; common medium faint gray (10YR 5/1) iron depletions in the matrix; common medium distinct dark yellowish brown (10YR 4/4) and many medium prominent yellowish brown (10YR 5/6) masses of iron and manganese accumulation in the matrix; common prominent strong brown (7.5YR 5/6) iron stains on faces of peds and in pores; few fine rounded masses of iron and manganese oxide accumulation throughout; very strongly acid; clear smooth boundary.

2Btgx—35 to 42 inches; grayish brown (10YR 5/2) silty clay loam; moderate coarse prismatic structure; firm; brittle; few faint grayish brown (10YR 5/2) clay films and common prominent white (10YR 8/1) (dry) silt coatings on faces of peds; brittle; few fine faint gray (10YR 6/1) iron depletions and common medium distinct dark yellowish brown (10YR 4/4) masses of iron and manganese accumulation in the matrix; common prominent strong brown (7.5YR 5/6) iron stains on faces of peds and in pores; few fine rounded masses of iron and manganese oxide accumulation throughout; very strongly acid; gradual smooth boundary.

2Btg—42 to 60 inches; gray (10YR 5/1) silty clay loam; weak coarse prismatic structure; very firm; few faint dark gray (10YR 4/1) clay films in root channels; common medium distinct yellowish brown (10YR 5/4) and common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine rounded masses of iron and manganese oxide accumulation throughout; about 1 percent gravel; very strongly acid.

Range in Characteristics

Thickness of the loess: 30 to 55 inches
Depth to fragic layer: 30 to 55 inches
Depth to carbonates: More than 80 inches

Ap or A horizon:
Hue—10YR
Value—3 to 5 (6 or 7 dry)
Chroma—1 to 3
Texture—silt loam
Content of rock fragments—none
Reaction—very strongly acid or strongly acid; ranges to neutral in areas that have been limed

E, EB, or BE horizon (where present):
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—none
Reaction—very strongly acid or strongly acid; ranges to slightly acid in areas that have been limed

Bt and/or Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 3
Texture—silty clay loam or silty clay
Content of rock fragments—none
Reaction—very strongly acid to slightly acid

2Btgx and/or 2Bgx horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—1 or 2 (ranges to 8 in multicolored horizons)
Texture—silt loam, loam, silty clay loam, or clay loam
Content of rock fragments—0 to 5 percent
Reaction—very strongly acid to moderately acid
Brittleness—30 to 60 percent by volume

2Btg or 2BCg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 or 2 (ranges to 6 in multicolored horizons)
Texture—silty clay loam, silt loam, or loam
Content of rock fragments—0 to 5 percent
Reaction—very strongly acid to moderately acid

13A—Bluford silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on the landform: Summits

Map Unit Composition

Bluford and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that have less clay in the subsoil
- Soils that have a sandy substratum
- Soils that do not have brittleness in the lower part of the subsoil

Dissimilar soils:
- The poorly drained Cisne soils on flats; in positions above those of the Bluford soil

Properties and Qualities of the Bluford Soil

Parent material: Loess over loamy pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: 30 to 55 inches to fragic soil properties
Available water capacity: About 9.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.5 percent
Shrink-swell potential: High
Depth and months of the highest perched seasonal high water table: 0.5 foot, January through May

Ponding: None
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland category: Prime farmland where drained
Hydric soil status: Not hydric

13B—Bluford silt loam, 2 to 5 percent slopes

Setting

Landform: Till plains
Position on the landform: Shoulders

Map Unit Composition

Bluford and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that have less clay in the subsoil
- Soils that have a sandy substratum
- Soils that do not have brittleness in the lower part of the subsoil
- Soils that are eroded

Dissimilar soils:
- The poorly drained Cisne soils on flats; in positions above those of the Bluford soil

Properties and Qualities of the Bluford Soil

Parent material: Loess over silty or loamy pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: 30 to 55 inches to fragic soil properties
Available water capacity: About 9.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.5 percent
Shrink-swell potential: High
Depth and months of the highest perched seasonal high water table: 0.5 foot, January through May
Ponding: None
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e

Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Brenton Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Argiudolls

Typical Pedon

Brenton silt loam, 0 to 2 percent slopes, at an elevation of 768 feet above mean sea level; McLean County, Illinois; 525 feet east and 1,620 feet south of the northwest corner of sec. 15, T. 22 N., R. 6 E.; USGS Bellflower, Illinois, topographic quadrangle; lat. 40 degrees 21 minutes 53 seconds N. and long. 88 degrees 30 minutes 55 seconds W.; UTM Zone 16T, 0371344E 4469339N, NAD 83:

Ap1—0 to 8 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; many very fine roots throughout; moderately acid; abrupt smooth boundary.

Ap2—8 to 14 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak fine subangular blocky structure parting to moderate medium granular; friable; common very fine roots throughout; few very fine tubular pores; moderately acid; abrupt smooth boundary.

Bt1—14 to 17 inches; brown (10YR 4/3) silty clay loam; moderate medium subangular blocky structure; friable; common very fine roots along faces of peds; few very fine tubular pores; few distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine prominent iron-manganese oxide concretions and stains throughout; moderately acid; clear smooth boundary.

Bt2—17 to 22 inches; olive brown (2.5Y 4/4) silty clay loam; weak fine prismatic structure parting to moderate medium angular blocky; friable; common very fine and few fine roots along faces of peds; few very fine and fine tubular pores; common distinct dark brown (10YR 3/3) organo-clay films on faces of peds; few fine distinct dark grayish brown (10YR 4/2) iron depletions in the matrix; few fine prominent iron-manganese oxide concretions and stains throughout; moderately acid; clear smooth boundary.

Bt3—22 to 28 inches; olive brown (2.5Y 4/4) silty clay loam; moderate medium prismatic structure parting to moderate fine and medium angular blocky; friable; common very fine and few fine roots along faces of peds; few very fine and fine tubular pores; common distinct dark brown (10YR 3/3) organo-clay films on faces of peds; few fine distinct grayish brown (10YR 5/2) iron depletions and faint yellowish brown (10YR 5/4) masses of iron and manganese accumulation in the matrix; few fine prominent iron-manganese oxide concretions and stains throughout; moderately acid; clear smooth boundary.

Bt4—28 to 33 inches; light olive brown (2.5Y 5/4) silty clay loam; moderate medium prismatic structure parting to strong medium subangular blocky; friable; common very fine and few fine roots along faces of peds; few very fine tubular pores; few distinct grayish brown (10YR 5/2) clay films on faces of peds; common fine and medium distinct grayish brown (2.5Y 5/2) iron depletions in the matrix; few fine prominent iron-manganese oxide concretions and stains throughout; moderately acid; clear smooth boundary.

2Bt5—33 to 45 inches; olive brown (2.5Y 4/4), stratified loam and fine sandy loam; moderate medium and coarse subangular blocky structure; friable; few very fine roots along faces of peds; few very fine tubular pores; many distinct very dark grayish brown (2.5Y 3/2) organo-clay films lining root channels and common

distinct grayish brown (2.5Y 5/2) clay films on faces of peds; few fine distinct grayish brown (2.5Y 5/2) iron depletions and common fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine prominent iron-manganese oxide concretions and stains throughout; slightly acid; clear smooth boundary.

2BC—45 to 54 inches; light olive brown (2.5Y 5/6) and light brownish gray (2.5Y 6/2) loam; weak medium subangular blocky structure; friable; few very fine roots along faces of peds; few very fine tubular pores; many distinct very dark grayish brown (2.5Y 3/2) organo-clay films lining root channels and pores; common fine prominent iron-manganese oxide concretions and stains throughout; neutral; clear smooth boundary.

2Cg1—54 to 69 inches; gray (2.5Y 6/1) silt loam; weak thick and very thick platy rock structure; very friable; few very fine roots throughout; many very fine horizontal tubular pores between plates and few very fine vertical tubular pores through plates; many very dark grayish brown (2.5Y 3/2) organo-clay films lining root channels and pores; common fine and medium prominent light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; common very fine and fine prominent black (10YR 2/1) masses of iron-manganese oxide concretions and stains throughout; slightly effervescent; neutral; clear smooth boundary.

2Cg2—69 to 80 inches; gray (2.5Y 6/1) silt; massive; very friable; few very fine roots throughout; few very fine tubular pores; common fine and medium prominent yellowish brown (10YR 5/6 and 5/8) masses of iron accumulation in the matrix; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches
Thickness of the loess: 24 to 40 inches
Depth to carbonates: More than 40 inches
Depth to the base of the argillic horizon: 40 to 60 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam
Content of rock fragments—none
Reaction—moderately acid to slightly alkaline

Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

2Bt and 2BC horizons:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—stratified loam, fine sandy loam, sandy loam, or silt loam
Content of rock fragments—0 to 5 percent
Reaction—moderately acid to slightly alkaline

2Cg horizon:
Hue—2.5Y, 10YR, or 7.5YR
Value—4 to 6
Chroma—1 to 6
Texture—silt loam or silt; typically with strata of sandy loam and loam
Content of rock fragments—0 to 15 percent
Reaction—neutral to moderately alkaline

149A—Brenton silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains and stream terraces
Position on the landform: Summits and footslopes

Map Unit Composition

Brenton and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that have a thin surface layer
- Soils that have a loamy subsoil
- Soils that are eroded

Dissimilar soils:
- The well drained Proctor soils on slight rises; in positions above those of the Brenton soil
- The poorly drained Drummer soils in swales

Properties and Qualities of the Brenton Soil

Parent material: Loess over stratified loamy outwash
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.5 to 5.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 1 foot, January through May
Ponding: None
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Brooklyn Series

Taxonomic classification: Fine, smectitic, mesic Mollic Albaqualfs

Typical Pedon

Brooklyn silt loam, 0 to 2 percent slopes, at an elevation of 679 feet above mean sea level; Douglas County, Illinois; 200 feet east and 1,430 feet south of the northwest corner of sec. 8, T. 16 N., R. 14 W.; USGS Newman, Illinois, topographic quadrangle; lat. 39 degrees 51 minutes 40.1 seconds N. and long. 87 degrees 58 minutes 28.4 seconds W.; UTM Zone 16S, 0416644E 4412800N, NAD 83:

Ap—0 to 9 inches; very dark gray (10YR 3/1) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; friable; common medium rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; neutral; abrupt smooth boundary.

Eg—9 to 14 inches; gray (2.5Y 6/1) silt loam; weak medium platy structure parting to moderate fine granular; friable; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; neutral; abrupt smooth boundary.

Btg1—14 to 20 inches; light brownish gray (2.5Y 6/2) silty clay; moderate fine prismatic structure parting to moderate fine angular blocky; firm; many distinct dark gray (10YR 4/1) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; neutral; clear smooth boundary.

Btg2—20 to 31 inches; gray (2.5Y 6/1) silty clay; moderate medium prismatic structure parting to moderate medium angular blocky; firm; common distinct dark gray (2.5Y 4/1) clay films on faces of peds; many prominent black (N 2.5/) organo-clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; moderately acid; gradual smooth boundary.

Btg3—31 to 40 inches; gray (2.5Y 6/1) silty clay loam; moderate coarse prismatic structure parting to moderate coarse angular blocky; firm; common distinct dark gray (2.5Y 4/1) clay films on faces of peds; few prominent black (N 2.5/) organo-clay films lining pores and root channels; many medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; neutral; abrupt smooth boundary.

2Btg4—40 to 46 inches; gray (2.5Y 5/1) clay loam; weak coarse prismatic structure; firm; few distinct dark gray (2.5Y 4/1) clay films on faces of peds; few distinct black (2.5Y 2.5/1) organo-clay films lining pores and root channels; many medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common medium rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; 5 percent gravel; neutral; abrupt smooth boundary.

2Bt—46 to 52 inches; 40 percent strong brown (7.5YR 4/6), 40 percent dark brown (10YR 3/3), and 20 percent gray (2.5Y 5/1) gravelly clay loam; weak coarse subangular blocky structure; firm; few distinct dark gray (2.5Y 4/1) clay films on faces of peds; few distinct black (2.5Y 2.5/1) organo-clay films lining pores and root channels; common medium rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; 20 percent gravel; neutral; abrupt smooth boundary.

2BCt—52 to 62 inches; 50 percent yellowish brown (10YR 5/6), 30 percent light yellowish brown (2.5Y 6/3), and 20 percent gray (2.5Y 6/1) clay loam with thin strata of silt loam; massive; firm; very few distinct black (2.5Y 2.5/1) and very few distinct dark brown (7.5YR 3/2) organo-clay films lining pores and root channels; many medium rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; 5 percent gravel; neutral; gradual smooth boundary.

2C—62 to 73 inches; 60 percent yellowish brown (10YR 5/6) and 40 percent gray (2.5Y 5/1) loam with thin strata of sandy loam; massive; firm; many medium irregular black (7.5YR 2.5/1) iron-manganese masses throughout; 7 percent gravel; slightly effervescent; slightly alkaline; clear smooth boundary.

3Cd—73 to 80 inches; light olive brown (2.5Y 5/4) loam; few medium prominent red (2.5YR 4/8) mottles; massive; very firm; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation and few fine distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; 10 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the dark surface layer: 7 to 9 inches
Thickness of the loess: 36 to 55 inches
Depth to carbonates: More than 60 inches
Depth to the base of the argillic horizon: 40 to 72 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

E horizon:
Hue—2.5Y or 10YR
Value—4 to 6
Chroma—1 or 2
Texture—silt loam
Content of rock fragments—none
Reaction—very strongly acid to neutral

Btg horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 2
Texture—silty clay or silty clay loam
Content of rock fragments—none
Reaction—very strongly acid to neutral

2Btg horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—3 to 6
Chroma—1 to 6
Texture—stratified clay loam, sandy clay loam, sandy loam, or silt loam
Content of rock fragments—2 to 20 percent
Reaction—strongly acid to slightly alkaline

2Cg horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 to 8
Texture—stratified clay loam, loam, sandy loam, or sandy clay loam
Content of rock fragments—2 to 15 percent
Reaction—neutral or slightly alkaline

3Cd horizon (where present):
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 to 8
Texture—loam
Content of rock fragments—2 to 15 percent
Reaction—slightly alkaline or moderately alkaline

136A—Brooklyn silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains and stream terraces
Position on the landform: Toeslopes

Map Unit Composition

Brooklyn and similar soils: 93 percent
Dissimilar soils: 7 percent

Soils of Minor Extent

Similar soils:
- Soils that have a thick dark surface layer
- Soils that have a surface layer of silty clay loam

Dissimilar soils:
- The somewhat poorly drained Millbrook soils on slight rises; in positions above those of the Brooklyn soil

Properties and Qualities of the Brooklyn Soil

Parent material: Loess over stratified loamy outwash
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow to moderate
Depth to restrictive feature: 60 to 100 inches to dense material
Available water capacity: About 9.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.5 to 3.5 percent
Shrink-swell potential: High
Depth and months of the highest perched seasonal high water table: At the surface, January through May
Frequency, duration, and most likely period of ponding: Frequent for brief periods from January through May
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland category: Prime farmland where drained
Hydric soil status: Hydric

Brouillett Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Aquic Cumulic Hapludolls

Typical Pedon

Brouillett silt loam, 0 to 2 percent slopes, frequently flooded, in a pasture at an elevation of 597 feet above mean sea level; Edgar County, Illinois; about 2.5 miles southeast of Chrisman; 660 feet west and 330 feet south of the northeast corner of sec. 4, T. 15 N., R. 11 W.; USGS Chrisman, Illinois, topographic quadrangle; lat. 39 degrees 47 minutes 31.9 seconds N. and long. 87 degrees 38 minutes 14.3 seconds W.; UTM Zone 16S, 0445432E 4404891N, NAD 83:

A1—0 to 11 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine and medium granular structure; friable; many very fine roots; slightly alkaline; gradual wavy boundary.

A2—11 to 19 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate very fine and fine subangular blocky structure; friable; common very fine roots; slightly alkaline; gradual wavy boundary.

A3—19 to 26 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine subangular blocky structure; friable; common very fine roots; slightly alkaline; clear wavy boundary.

Bg1—26 to 34 inches; dark grayish brown (10YR 4/2) silt loam; weak medium subangular blocky structure; friable; common very fine roots; many distinct very dark gray (10YR 3/1) organic coatings on faces of peds; common fine and medium rounded black (10YR 2/1) weakly cemented iron-manganese oxide nodules throughout; slightly alkaline; gradual wavy boundary.

Bg2—34 to 42 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium and coarse subangular blocky structure; friable; few very fine roots; few distinct very dark gray (10YR 3/1) organic coatings in root channels; many medium and coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (10YR 2/1) weakly cemented iron-manganese oxide nodules throughout; about 2 percent fine gravel; slightly alkaline; gradual wavy boundary.

Cg—42 to 60 inches; light brownish gray (2.5Y 6/2), stratified silt loam and loam; massive; friable; few very fine roots; many medium and coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (10YR 2/1) weakly cemented iron-manganese oxide nodules throughout; about 2 percent fine gravel; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 36 inches
Depth to carbonates: More than 40 inches
Content of clay in the particle-size control section: 18 to 27 percent

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2

Texture—silt loam
Content of rock fragments—0 to 5 percent
Reaction—slightly acid to slightly alkaline

Bg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 3
Texture—silt loam or loam; stratified in some pedons
Content of rock fragments—0 to 5 percent
Reaction—slightly acid to slightly alkaline

Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 3
Texture—stratified silt loam and loam with strata of sandy loam to clay loam
Content of rock fragments—0 to 15 percent
Reaction—slightly acid to moderately alkaline

3450A—Brouillett silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Brouillett and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that are subject to occasional flooding
- Soils that have a silty subsoil
- Soils that have a sandy subsoil
- Soils that have a thin surface layer

Dissimilar soils:
- Soils that are subject to rare flooding
- The well drained Landes, Ross, and Wirt soils on flood-plain steps; in positions above those of the Brouillett soil
- The poorly drained Sawmill soils in swales and backswamps

Properties and Qualities of the Brouillett Soil

Parent material: Loamy alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.5 to 5.0 percent
Shrink-swell potential: Low
Depth and months of the highest apparent seasonal high water table: 1 foot, January through May
Ponding: None

Frequency and most likely period of flooding: Frequent, November through June
Potential for frost action: Moderate
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w
Prime farmland category: Prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

Camden Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Camden silt loam, sandy substratum, 2 to 5 percent slopes, rarely flooded, at an elevation of 612 feet above mean sea level; Shelby County, Illinois; 2,400 feet south and 250 feet east of the northwest corner of sec. 4, T. 13 N., R. 2 E.; USGS Obed, Illinois, topographic quadrangle; lat. 39 degrees 36 minutes 12.9 seconds N. and long. 88 degrees 59 minutes 39.8 seconds W.; UTM Zone 16S, 0328766E 4385663N, NAD 83:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, brown (10YR 5/3) dry; weak fine granular structure; friable; common very fine roots; neutral; clear smooth boundary.
E—7 to 10 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium platy structure; friable; common very fine roots; neutral; clear smooth boundary.
Bt1—10 to 14 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; friable; few very fine roots; common faint brown (10YR 4/3) clay films on faces of peds; neutral; clear smooth boundary.
Bt2—14 to 20 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots; common faint brown (10YR 4/3) clay films on faces of peds; neutral; clear smooth boundary.
Bt3—20 to 29 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots; common faint brown (10YR 4/3) and few distinct brown (7.5YR 4/4) clay films on faces of peds; few fine rounded iron-manganese oxide concretions; neutral; clear smooth boundary.
2Bt4—29 to 35 inches; dark yellowish brown (10YR 4/4) loam; moderate medium subangular blocky structure; friable; few very fine roots; common distinct brown (7.5YR 4/4) and common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; moderately acid; clear smooth boundary.
2Bt5—35 to 45 inches; dark yellowish brown (10YR 4/4) sandy loam; weak medium subangular blocky structure; friable; few very fine roots; few distinct brown (7.5YR 4/4) clay films on faces of peds; 2 percent fine gravel; moderately acid; clear smooth boundary.
2BCt—45 to 66 inches; strong brown (10YR 4/6), stratified sandy loam and loamy sand; weak coarse subangular blocky structure; friable; few very fine roots; few faint brown (7.5YR 4/4) clay films on faces of peds; 5 percent fine gravel; moderately acid; clear smooth boundary.

2C—66 to 80 inches; pale brown (10YR 6/3), stratified loamy sand and sand with thin strata of very fine sandy loam; massive; very friable; few very fine roots; common coarse faint light brownish gray (10YR 6/2) iron depletions; few coarse distinct dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; 5 percent fine gravel; neutral.

Range in Characteristics

Thickness of the loess: 24 to 40 inches
Depth to carbonates: More than 60 inches
Depth to the base of the argillic horizon: 30 to 65 inches

Ap or A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—none
Reaction—slightly acid or neutral

E or BE horizon (where present):
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

2Bt and 2BC horizons:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—loam, clay loam, silt loam, silty clay loam, or sandy clay loam
Content of rock fragments—0 to 10 percent
Reaction—strongly acid to neutral

2C horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—stratified sandy loam, loam, sandy clay loam, sand, loamy sand, or silt loam
Content of rock fragments—0 to 10 percent
Reaction—strongly acid to neutral

7373B—Camden silt loam, sandy substratum, 2 to 5 percent slopes, rarely flooded

Setting

Landform: Stream terraces
Position on the landform: Summits and shoulders

Map Unit Composition

Camden and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that are subject to very rare flooding
- Soils that have sand and gravel in the substratum
- Soils that have a loamy subsoil
- Soils that have a dark surface layer

Dissimilar soils:
- The somewhat poorly drained Starks soils in dips and swales
- The poorly drained Sawmill soils on flood plains

Properties and Qualities of the Camden Soil

Parent material: Loess over stratified sandy outwash
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately rapid or rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February through April
Ponding: None
Frequency and most likely period of flooding: Rare, November through June
Potential for frost action: High
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Cisne Series

Taxonomic classification: Fine, smectitic, mesic Mollic Albaqualfs

Typical Pedon

Cisne silt loam, 0 to 2 percent slopes, at an elevation of 556 feet above mean sea level; Jasper County, Illinois; 1,960 feet west and 420 feet south of the northeast corner of sec. 3, T. 6 N., R. 9 E.; USGS Newton, Illinois, topographic quadrangle; lat. 38

degrees 59 minutes 36.6 seconds N. and long. 88 degrees 11 minutes 42.9 seconds W.; UTM Zone 16S, 0396490E 4316734N, NAD 83:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; few very dark gray (10YR 3/1) organic coatings on faces of peds; about 1 percent fine and medium weakly cemented iron-manganese oxide nodules throughout; moderately acid; abrupt smooth boundary.

Eg1—8 to 13 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; moderate medium platy structure; friable; common fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; about 2 percent fine and medium weakly cemented iron-manganese oxide nodules throughout; strongly acid; clear smooth boundary.

Eg2—13 to 17 inches; light gray (10YR 7/2) and light brownish gray (10YR 6/2) silt loam, very pale brown (10YR 8/2) dry; moderate medium platy structure; friable; about 2 percent fine and medium weakly cemented iron-manganese oxide nodules throughout; strongly acid; abrupt smooth boundary.

B/E—17 to 19 inches; gray (10YR 6/1) silty clay loam (B); moderate fine angular blocky structure; friable; common prominent light gray (10YR 7/1) clay depletions on faces of peds (E); common medium prominent yellowish red (5YR 4/6) masses of iron and manganese accumulation in the matrix; about 3 percent fine and medium weakly cemented iron-manganese oxide nodules throughout; strongly acid; clear smooth boundary.

Btg1—19 to 28 inches; grayish brown (10YR 5/2) silty clay loam; strong fine prismatic structure parting to strong fine angular blocky; firm; many distinct gray (10YR 5/1) clay films on faces of peds; common medium prominent yellowish red (5YR 4/6) masses of iron and manganese accumulation in the matrix; strongly acid; clear smooth boundary.

Btg2—28 to 37 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium angular blocky structure; firm; common distinct gray (10YR 5/1) clay films on faces of peds; common medium distinct dark yellowish brown (10YR 4/4) masses of iron and manganese accumulation in the matrix; strongly acid; clear smooth boundary.

2Btg3—37 to 43 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak coarse angular blocky structure; firm; few faint gray (10YR 5/1) clay films on faces of peds; common medium and coarse distinct dark yellowish brown (10YR 4/4) masses of iron and manganese accumulation in the matrix; about 15 percent sand; few pebbles; strongly acid; gradual smooth boundary.

2BCg—43 to 60 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak coarse angular blocky structure; firm; common coarse distinct dark yellowish brown (10YR 4/4) masses of iron and manganese accumulation in the matrix; about 15 percent sand in the upper part; the content of sand increases with increasing depth; few pebbles; moderately acid; gradual smooth boundary.

2Cg—60 to 80 inches; dark grayish brown (10YR 4/2) silt loam; massive; firm; many coarse prominent gray (N 6/) and light gray (N 7/) iron depletions in the matrix; few fine and medium iron-manganese oxide concretions throughout; about 20 percent sand; about 2 percent pebbles; slightly acid.

Range in Characteristics

Thickness of the dark surface layer: 7 to 9 inches
Thickness of the loess: 30 to 55 inches
Depth to carbonates: More than 60 inches
Depth to the base of the argillic horizon: 40 to 65 inches

Ap or A horizon:
Hue—10YR

Value—2 or 3
Chroma—1 to 3
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

E horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture—silt loam or silt
Content of rock fragments—none
Reaction—very strongly acid to moderately acid; ranges to neutral in areas that have been limed

B/E, BE, or EB horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 or 2
Texture—silt loam or silty clay loam
Content of rock fragments—none
Reaction—very strongly acid to moderately acid

Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam or silty clay
Content of rock fragments—none
Reaction—very strongly acid to moderately acid

2Btg or 2BCg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam, clay loam, loam, or silt loam
Content of rock fragments—0 to 10 percent
Reaction—strongly acid to slightly acid

2Cg, 3Ab, or 3Btb horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—1 or 2
Texture—silty clay loam, clay loam, loam, or silt loam
Content of rock fragments—2 to 15 percent
Reaction—moderately acid to neutral

2A—Cisne silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on the landform: Summits

Map Unit Composition

Cisne and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that have a thick dark surface layer
- Soils that have less clay in the subsoil

Dissimilar soils:
- The somewhat poorly drained Hoyleton soils on slight rises; in positions above those of the Cisne soil

Properties and Qualities of the Cisne Soil

Parent material: Loess over loamy pedisediment
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: 16 to 21 inches to abrupt textural change
Available water capacity: About 9.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.5 to 3.5 percent
Shrink-swell potential: High
Depth and months of the highest apparent seasonal high water table: At the surface, January through May
Frequency, duration, and most likely period of ponding: Frequent for brief periods from January through May
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w
Prime farmland category: Prime farmland where drained
Hydric soil status: Hydric

Dana Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls
Taxadjunct features: The Dana soil in map unit 56B2 has a thinner dark surface layer than is defined as the range for the series. This difference, however, does not significantly affect the use and management of the soil. This soil is classified as a fine-silty, mixed, superactive, mesic Mollic Oxyaquic Hapludalf.

Typical Pedon

Dana silt loam, 2 to 5 percent slopes, at an elevation of about 706 feet above mean sea level; Edgar County, Illinois; about 1,810 feet north and 750 feet east of the southwest corner of sec. 10, T. 16 N., R. 14 W.; USGS Newman, Illinois, topographic quadrangle; lat. 39 degrees 51 minutes 21 seconds N. and long. 87 degrees 56 minutes 05 seconds W.; UTM Zone 16S, 0420042E 4411965N, NAD 27:

Ap—0 to 11 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 4/3) dry; moderate fine granular structure; friable; common very fine and fine roots throughout; moderately acid; clear smooth boundary.

Bt1—11 to 15 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; friable; common very fine and fine roots throughout; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds;

many distinct dark brown (10YR 3/3) organo-clay films on faces of peds; slightly acid; clear smooth boundary.

Bt2—15 to 25 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine prismatic structure parting to moderate fine angular blocky; firm; common very fine and fine roots between peds; many distinct brown (10YR 4/3) clay films on faces of peds; moderately acid; clear smooth boundary.

Bt3—25 to 32 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; common very fine and fine roots between peds; common medium vesicular and tubular pores; few distinct dark brown (10YR 3/3) organo-clay films on faces of peds and in pores; many distinct brown (10YR 4/3) clay films on faces of peds; common fine faint light brownish gray (10YR 6/2) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) weakly cemented iron-manganese oxide nodules throughout; slightly acid; clear smooth boundary.

2Bt4—32 to 38 inches; brown (10YR 5/3) clay loam; moderate medium prismatic structure; firm; few very fine and fine roots between peds; common medium vesicular and tubular pores; few distinct very dark grayish brown (10YR 3/2) organo-clay films along root channels and pores; many distinct brown (10YR 4/3) clay films on faces of peds; common medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and medium rounded black (7.5YR 2.5/1) weakly cemented iron-manganese oxide nodules throughout; 3 percent fine and medium gravel; neutral; clear smooth boundary.

2Bt5—38 to 53 inches; brown (10YR 5/3) clay loam; moderate coarse prismatic structure; firm; few very fine and fine roots between peds; common medium and coarse vesicular and tubular pores; few prominent very dark gray (10YR 3/1) organo-clay films along root channels and pores; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct gray (10YR 6/1) iron depletions in the matrix; many medium distinct dark yellowish brown (10YR 4/6) masses of iron and manganese accumulation in the matrix; few medium rounded black (7.5YR 2.5/1) weakly cemented iron-manganese oxide nodules throughout; 7 percent fine and medium gravel; neutral; clear smooth boundary.

2Bt6—53 to 58 inches; brown (10YR 5/3) clay loam; weak coarse angular blocky structure; firm; few very fine and fine roots between peds; common medium and coarse vesicular and tubular pores; few prominent very dark gray (10YR 3/1) organo-clay films along root channels and pores; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct gray (10YR 6/1) iron depletions in the matrix; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium rounded black (7.5YR 2.5/1) weakly cemented iron-manganese oxide nodules throughout; 7 percent fine and medium gravel; neutral; clear smooth boundary.

2C—58 to 80 inches; pale brown (10YR 6/3) loam; massive; firm; few fine and medium vesicular and tubular pores; common medium distinct gray (10YR 6/1) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium irregular brown (10YR 4/3) extremely weakly cemented iron and manganese oxide masses on horizontal fracture planes; few fine to coarse rounded yellowish red (5YR 5/8) weakly cemented iron oxide nodules throughout; few medium rounded black (7.5YR 2.5/1) weakly cemented iron-manganese oxide nodules throughout; common medium rounded and irregular white (10YR 8/1) weakly cemented calcium carbonate nodules throughout; 7 percent fine and medium gravel; violently effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon or dark surface layer: 7 to 20 inches
Thickness of the loess: 22 to 40 inches
Depth to carbonates: 40 to 60 inches
Depth to the base of the argillic horizon: 32 to 60 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam
Content of rock fragments—typically none
Reaction—moderately acid to neutral

BA horizon (where present):
Hue—10YR
Value—4
Chroma—3
Texture—silt loam or silty clay loam
Content of rock fragments—typically none
Reaction—moderately acid to neutral

Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam
Content of rock fragments—typically none
Reaction—strongly acid to neutral

2Bt horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture—clay loam
Content of rock fragments—1 to 7 percent
Reaction—moderately acid to neutral

2BC horizon (where present):
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture—loam or clay loam
Content of rock fragments—1 to 15 percent
Reaction—neutral to moderately alkaline

2C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—loam or clay loam
Content of rock fragments—1 to 15 percent
Reaction—slightly alkaline or moderately alkaline

56B—Dana silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Shoulders and summits

Map Unit Composition

Dana and similar soils: 94 percent
Dissimilar soils: 6 percent

Soils of Minor Extent

Similar soils:
- Soils that are eroded
- Soils that have a sandy substratum

Dissimilar soils:
- The somewhat poorly drained Raub soils on footslopes; in positions below those of the Dana soil
- The poorly drained Drummer soils in swales

Properties and Qualities of the Dana Soil

Parent material: Loess over till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 5.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest perched seasonal high water table: 2 feet, February through April
Ponding: None
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

56B2—Dana silt loam, 2 to 5 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders and summits

Map Unit Composition

Dana and similar soils: 94 percent
Dissimilar soils: 6 percent

Soils of Minor Extent

Similar soils:
- Soils that are not eroded
- Soils that have a sandy substratum

Dissimilar soils:
- The somewhat poorly drained Raub soils on footslopes; in positions below those of the Dana soil
- The poorly drained Drummer soils in swales

Properties and Qualities of the Dana Soil

Parent material: Loess over till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.5 to 3.5 percent
Shrink-swell potential: Moderate
Depth and months of the highest perched seasonal high water table: 2 feet, February through April
Ponding: None
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Drummer Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon

Drummer silty clay loam, 0 to 2 percent slopes, at an elevation of 715 feet above mean sea level; Champaign County, Illinois; on the University of Illinois South Farm 1 mile south of Urbana; 1,600 feet east and 300 feet north of the southwest corner of sec. 19, T. 19 N., R. 9 E.; USGS Urbana, Illinois, topographic quadrangle; lat. 40 degrees 05 minutes 04 seconds N. and long. 88 degrees 13 minutes 58 seconds W.; UTM Zone 16T, 0394894E 4437861N, NAD 83:

Ap—0 to 7 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; weak fine granular structure; firm; many fine roots; moderately acid; clear smooth boundary.

A—7 to 14 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure parting to weak fine granular; firm; many fine and medium roots; slightly acid; clear smooth boundary.

BA—14 to 19 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; moderate fine and medium subangular blocky structure; firm; many fine and

medium roots; few fine faint very dark grayish brown (2.5Y 3/2) masses of iron and manganese accumulation in the matrix; slightly acid; gradual smooth boundary.

Bg—19 to 25 inches; dark gray (10YR 4/1) silty clay loam; moderate fine prismatic structure parting to moderate fine angular blocky; firm; many fine roots; common fine distinct and prominent yellowish brown (10YR 5/4 and 5/6) masses of iron accumulation in the matrix; many wormholes; neutral; gradual smooth boundary.

Btg1—25 to 32 inches; grayish brown (2.5Y 5/2) silty clay loam; weak fine and medium prismatic structure parting to moderate fine angular blocky; firm; many fine roots; common distinct dark gray (N 4/) clay films on faces of peds; many medium distinct yellowish brown (10YR 5/4) masses of iron and manganese accumulation in the matrix; neutral; gradual wavy boundary.

Btg2—32 to 41 inches; gray (N 5/) silty clay loam; weak medium prismatic structure parting to weak medium angular blocky; firm; few fine roots; few distinct dark gray (N 4/) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/4) masses of iron and manganese accumulation in the matrix; neutral; clear wavy boundary.

2Btg3—41 to 47 inches; gray (N 5/) loam; weak coarse subangular blocky structure; friable; few fine roots; few distinct dark gray (10YR 4/1) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; neutral; abrupt wavy boundary.

2Cg—47 to 60 inches; dark gray (10YR 4/1), stratified loam and sandy loam; massive; friable; many medium prominent olive brown (2.5Y 4/4) masses of iron and manganese accumulation in the matrix; many medium distinct gray (N 5/) iron depletions in the matrix; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches
Thickness of the loess: 40 to 60 inches
Depth to carbonates: 40 to 65 inches
Depth to the base of the cambic horizon: 40 to 65 inches

Ap or A horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—2 or 3
Chroma—0 to 2
Texture—silty clay loam
Content of rock fragments—0 to 1 percent
Reaction—moderately acid to neutral

Bg and Btg horizons:
Hue—10YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 4
Texture—silty clay loam or silt loam
Content of rock fragments—0 to 1 percent
Reaction—moderately acid to neutral

2Btg or 2BCg horizon:
Hue—7.5YR, 10YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 2
Texture—loam or silt loam
Content of rock fragments—0 to 7 percent
Reaction—slightly acid to slightly alkaline

2Cg horizon:
Hue—7.5YR, 10YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 8
Texture—loam, sandy loam, sandy clay loam, or clay loam; strata of silt loam or silty clay loam
Content of rock fragments—0 to 15 percent
Reaction—neutral to moderately alkaline

152A—Drummer silty clay loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains and stream terraces
Position on the landform: Toeslopes

Map Unit Composition

Drummer and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that have more clay in the subsoil
- Soils that have a loamy subsoil
- Soils that have a silty substratum
- Soils that have a very thick dark surface layer
- Soils that have a limy surface layer

Dissimilar soils:
- The somewhat poorly drained Brenton soils on slight rises; in positions above those of the Drummer soil

Properties and Qualities of the Drummer Soil

Parent material: Loess over stratified loamy outwash
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4.5 to 7.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: At the surface, January through May
Frequency, duration, and most likely period of ponding: Frequent for brief periods from January through May
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w

Prime farmland category: Prime farmland where drained
Hydric soil status: Hydric

722A—Drummer-Milford silty clay loams, 0 to 2 percent slopes

Setting

Landform: Outwash plains
Position on the landform: Toeslopes and depressions

Map Unit Composition

Drummer and similar soils: 60 percent
Milford and similar soils: 35 percent
Dissimilar soils: 5 percent

Soils of Minor Extent

Similar soils:
- Soils that have a very thick dark surface layer
- Soils that have a limy surface layer
- Soils that have a loamy subsoil
- Soils that are subject to very rare flooding
- Soils that are ponded for long periods

Dissimilar soils:
- The somewhat poorly drained Raub and Flanagan soils on knobs and slight rises; in positions above those of the Drummer and Milford soils
- Soils that are subject to occasional flooding

Properties and Qualities of the Drummer Soil

Parent material: Loess over stratified loamy outwash
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4.5 to 7.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: At the surface, January through May
Frequency, duration, and most likely period of ponding: Frequent for brief periods from January through May
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Properties and Qualities of the Milford Soil

Parent material: Loess over silty and clayey lacustrine deposits
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches

Available water capacity: About 8.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4.5 to 6.0 percent
Shrink-swell potential: High
Depth and months of the highest apparent seasonal high water table: At the surface, January through May
Frequency, duration, and most likely period of ponding: Frequent for brief periods from January through May
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Moderate

Interpretive Groups

Land capability classification: Drummer—2w; Milford—2w
Prime farmland category: Prime farmland where drained
Hydric soil status: Drummer—hydric; Milford—hydric

Ebbert Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Argiaquic Argialbolls

Typical Pedon

Ebbert silt loam, 0 to 2 percent slopes, at an elevation of 597 feet above mean sea level; Effingham County, Illinois; about 1 mile southeast of Montrose; 600 feet north and 50 feet west of the southeast corner of sec. 1, T. 8 N., R. 7 E.; USGS Woodbury, Illinois, topographic quadrangle; lat. 39 degrees 09 minutes 50.4 seconds N. and long. 88 degrees 21 minutes 39.0 seconds W.; UTM Zone 16S, 0382434E 4335858N, NAD 83:

Ap—0 to 7 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine granular structure; friable; few medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

A—7 to 13 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate medium granular structure; friable; few medium distinct yellowish brown (10YR 5/4) masses of iron and manganese accumulation in the matrix; moderately acid; clear smooth boundary.

E—13 to 22 inches; dark gray (10YR 4/1) silt loam, gray (10YR 6/1) dry; weak medium platy structure parting to weak very fine subangular blocky; friable; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; strongly acid; clear smooth boundary.

Btg1—22 to 30 inches; dark gray (10YR 4/1) silty clay loam, gray (10YR 6/1) dry; moderate fine and medium angular blocky structure; firm; many distinct very dark gray (10YR 3/1) clay films on faces of peds; common fine distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; moderately acid; gradual smooth boundary.

Btg2—30 to 40 inches; dark gray (10YR 4/1) silty clay loam; moderate medium prismatic structure parting to moderate fine angular blocky; firm; common distinct very dark grayish brown (10YR 3/2) clay films on faces of peds; many fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; moderately acid; clear wavy boundary.

Btg3—40 to 48 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium subangular blocky structure; friable; common distinct very dark gray (10YR 3/1) clay films on faces of peds; few fine prominent yellowish red (5YR 4/6) masses of

iron and manganese accumulation and many fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; moderately acid; clear wavy boundary.

2Cg—48 to 60 inches; gray (10YR 5/1) silty clay loam; massive; very firm; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; about 10 percent sand; slightly acid.

Range in Characteristics

Thickness of the loess: More than 40 inches
Thickness of the mollic epipedon: 10 to 18 inches
Depth to the top of the argillic horizon: 12 to 24 inches
Depth to the base of the argillic horizon: More than 40 inches
Depth to carbonates: More than 60 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid to slightly acid; ranges to neutral in areas that have been limed

E horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—1 or 2
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid or moderately acid

Btg horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—3 to 6
Chroma—0 to 2
Texture—silty clay loam
Content of rock fragments—none
Reaction—very strongly acid to neutral

Cg or 2Cg horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam, silt loam, or clay loam
Content of rock fragments—0 to 5 percent
Reaction—moderately acid to neutral

48A—Ebbert silt loam, 0 to 2 percent slopes

Setting

Landform: Depressions on till plains

Map Unit Composition

Ebbert and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that have a sandy substratum
- Soils that have more clay in the subsoil
- Soils that have a thin surface layer

Dissimilar soils:
- The somewhat poorly drained Bluford and Hoyleton soils on slight rises; in positions above those of the Ebbert soil

Properties and Qualities of the Ebbert Soil

Parent material: Loess over pedisediment
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: At the surface, January through May
Frequency, duration, and most likely period of ponding: Frequent for brief periods from January through May
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w
Prime farmland category: Prime farmland where drained
Hydric soil status: Hydric

Fincastle Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs
Taxadjunct features: The Fincastle soils in this survey area are less gray in the upper part of the subsoil than is defined as the range for the series. This difference, however, does not significantly affect the use and management of the soils. These soils are classified as fine-silty, mixed, superactive, mesic Aquic Hapludalfs.

Typical Pedon

Fincastle silt loam, 0 to 2 percent slopes, at an elevation of 653 feet above mean sea level; Coles County, Illinois; 100 feet south and 1,800 feet west of the northeast corner of sec. 29, T. 14 N., R. 10 E.; USGS Oakland, Illinois, topographic quadrangle; lat. 39 degrees 38 minutes 13.5 seconds N. and long. 88 degrees 06 minutes 26.5 seconds W.; UTM Zone 16S, 0404973E 4388067N, NAD 83:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; neutral; abrupt smooth boundary.

E—8 to 11 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; moderate medium subangular blocky structure; firm; few fine distinct yellowish brown (10YR 5/4) masses of iron and manganese accumulation in the matrix; few

fine rounded dark masses of iron and manganese oxide accumulation throughout; moderately acid; abrupt smooth boundary.

Bt1—11 to 18 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; common distinct grayish brown (10YR 5/2) clay films on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions and brown (7.5YR 4/4) masses of iron and manganese accumulation in the matrix; moderately acid; clear smooth boundary.

Bt2—18 to 24 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common fine and medium distinct grayish brown (10YR 5/2) iron depletions and brown (7.5YR 4/4) masses of iron and manganese accumulation in the matrix; few fine rounded dark masses of iron-manganese oxide accumulation throughout; moderately acid; clear smooth boundary.

Bt3—24 to 32 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; common distinct grayish brown (10YR 5/2) clay films on faces of peds; many medium distinct light brownish gray (10YR 6/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded dark masses of iron-manganese oxide accumulation throughout; moderately acid; clear smooth boundary.

2Bt4—32 to 40 inches; light brownish gray (10YR 6/2) clay loam; moderate medium subangular blocky structure; firm; few distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine rounded dark masses of iron-manganese oxide accumulation throughout; slightly acid; clear smooth boundary.

2C—40 to 50 inches; yellowish brown (10YR 5/6) loam; massive; firm; common medium prominent grayish brown (10YR 5/2) iron depletions and common faint strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

2Cd—50 to 60 inches; yellowish brown (10YR 5/6) loam; massive; firm; common medium prominent grayish brown (10YR 5/2) iron depletions and common faint strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 22 to 40 inches
Depth to carbonates: 35 to 60 inches
Depth to the base of the argillic horizon: 40 to 60 inches

Ap or A horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

E or BE horizon (where present):
Hue—10YR
Value—4 to 6
Chroma—2 or 3
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—strongly acid to slightly acid

2Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—clay loam, loam, or silty clay loam
Content of rock fragments—0 to 7 percent
Reaction—moderately acid to slightly alkaline

2BC or 2C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—clay loam or loam
Content of rock fragments—0 to 8 percent
Reaction—neutral to moderately alkaline

2Cd horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—loam or silt loam
Content of rock fragments—2 to 14 percent
Reaction—slightly alkaline or moderately alkaline

496A—Fincastle silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits and footslopes

Map Unit Composition

Fincastle and similar soils: 94 percent
Dissimilar soils: 6 percent

Soils of Minor Extent

Similar soils:
- Soils that have a thick dark surface layer
- Soils that have a sandy substratum
- Soils that are less gray in the subsoil

Dissimilar soils:
- The well drained Russell soils on gently sloping shoulders
- The poorly drained Drummer soils in swales

Properties and Qualities of the Fincastle Soil

Parent material: Loess over till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: 40 to 70 inches to dense material
Available water capacity: About 9.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.5 percent
Shrink-swell potential: Moderate
Depth and months of the highest perched seasonal high water table: 1 foot, January through May
Ponding: None
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Flanagan Series

Taxonomic classification: Fine, smectitic, mesic Aquic Argiudolls

Typical Pedon

Flanagan silt loam, 0 to 2 percent slopes, at an elevation of 730 feet above mean sea level; Champaign County, Illinois; about 1 mile south of Champaign on the University of Illinois South Farm; 1,607 feet east and 1,405 feet north of the southwest corner of sec. 19, T. 19 N., R. 9 E.; USGS Urbana, Illinois, topographic quadrangle; lat. 40 degrees 05 minutes 14 seconds N. and long. 88 degrees 13 minutes 57 seconds W.; UTM Zone 16T, 0394922E 4438169N, NAD 83:

A1—0 to 8 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate medium granular structure; friable; slightly acid; gradual smooth boundary.
A2—8 to 15 inches; very dark brown (10YR 2/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; friable; slightly acid; clear smooth boundary.
A3—15 to 18 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; slightly acid; clear smooth boundary.
Bt1—18 to 23 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine subangular blocky structure; firm; many distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; few fine faint brown (10YR 4/3) masses of iron and manganese accumulation in the matrix; moderately acid; clear smooth boundary.
Bt2—23 to 32 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate medium subangular blocky structure; firm; many distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common fine faint brown (10YR 5/3 and 4/3) masses of iron and manganese accumulation in the matrix; moderately acid; clear smooth boundary.
Bt3—32 to 38 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; many distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common fine faint light yellowish brown (10YR 6/4) masses of iron and manganese accumulation and common fine

distinct yellowish brown (10YR 5/6) masses of iron in the matrix; slightly acid; clear smooth boundary.

Bt4—38 to 45 inches; 40 percent yellowish brown (10YR 5/6), 30 percent light brownish gray (10YR 6/2), and 30 percent brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; slightly acid; gradual smooth boundary.

2Bt5—45 to 49 inches; 35 percent yellowish brown (10YR 5/4), 35 percent light olive brown (2.5Y 5/4), and 30 percent light brownish gray (10YR 6/2) silt loam; weak coarse subangular blocky structure; firm; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; 5 percent fine gravel; neutral; abrupt smooth boundary.

2C—49 to 60 inches; yellowish brown (10YR 5/4) loam; massive; firm; common fine and medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common medium prominent white (10YR 8/1) rounded weakly cemented calcium carbonate nodules throughout; 5 percent fine gravel; slightly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches
Thickness of the loess: 45 to 60 inches
Depth to carbonates: 45 to 65 inches
Depth to the base of the argillic horizon: 45 to 65 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

Bt horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 6
Texture—silty clay loam, silt loam, or silty clay
Content of rock fragments—none
Reaction—moderately acid to neutral

2Bt or 2BCt horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—loam, clay loam, silt loam, or silty clay loam
Content of rock fragments—1 to 15 percent
Reaction—slightly acid to slightly alkaline

2C horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—loam or clay loam
Content of rock fragments—1 to 15 percent
Reaction—slightly alkaline or moderately alkaline

154A—Flanagan silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits and footslopes

Map Unit Composition

Flanagan and similar soils: 94 percent
Dissimilar soils: 6 percent

Soils of Minor Extent

Similar soils:
- Soils that are shallow to a loamy substratum
- Soils that have a sandy substratum
- Soils that have less clay in the subsoil

Dissimilar soils:
- The moderately well drained Dana soils on gently sloping shoulders
- The poorly drained Drummer soils in swales

Properties and Qualities of the Flanagan Soil

Parent material: Loess over till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.5 to 5.0 percent
Shrink-swell potential: High
Depth and months of the highest apparent seasonal high water table: 1 foot, January through May
Ponding: None
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Hartsburg Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon

Hartsburg silty clay loam, 0 to 2 percent slopes, at an elevation of 571 feet above mean sea level; Logan County, Illinois; 660 feet west and 40 feet north of the southeast corner of sec. 23, T. 21 N., R. 4 W.; USGS New Holland, Illinois, topographic quadrangle; lat. 40 degrees 14 minutes 58.2 seconds N. and long. 89 degrees 31 minutes 28.4 seconds W.; UTM Zone 16T, 0285280E 4458507N, NAD 83:

Ap—0 to 7 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; slightly acid; abrupt smooth boundary.

A1—7 to 12 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; few very fine roots; slightly acid; clear smooth boundary.

A2—12 to 17 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; moderate medium granular structure; firm; few very fine roots; few fine rounded black (7.5YR 2.5/1) weakly cemented iron-manganese oxide concretions with diffuse boundaries along root channels and pores; few fine faint dark grayish brown (2.5Y 4/2) iron depletions in the matrix; neutral; clear smooth boundary.

Bg—17 to 21 inches; dark grayish brown (2.5Y 4/2) silty clay loam; weak fine and medium subangular blocky structure; firm; few very fine roots; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few fine rounded black (7.5YR 2.5/1) weakly cemented iron-manganese oxide concretions with diffuse boundaries lining root channels and pores; common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common very dark gray (10YR 3/1) krotovinas; neutral; clear smooth boundary.

Bkg—21 to 30 inches; gray (5Y 5/1) silty clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common distinct dark grayish brown (10YR 4/2) and grayish brown (2.5Y 5/2) pressure faces on faces of peds; few fine rounded black (7.5YR 2.5/1) weakly cemented iron-manganese oxide concretions with diffuse boundaries lining root channels and pores; common medium prominent yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine and medium rounded white (10YR 8/1) weakly cemented calcium carbonate concretions throughout; slightly effervescent; common very dark gray (10YR 3/1) krotovinas; slightly alkaline; abrupt wavy boundary.

BCkg—30 to 34 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak coarse subangular blocky structure; firm; many distinct gray (N 5/) and grayish brown (2.5Y 5/2) linings in pores and root channels; few fine rounded black (7.5YR 2.5/1) weakly cemented iron-manganese oxide concretions with diffuse boundaries lining pores; many medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; many medium and coarse rounded white (10YR 8/1) weakly cemented calcium carbonate concretions throughout; violently effervescent among concretions, slightly effervescent in the matrix; common very dark gray (10YR 3/1) krotovinas; slightly alkaline; clear wavy boundary.

Cg—34 to 60 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation with diffuse boundaries lining pores; few medium rounded white (10YR 8/1) weakly cemented calcium carbonate concretions throughout; strongly effervescent; common very dark gray (10YR 3/1) krotovinas; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches
Thickness of the loess: More than 40 inches
Depth to carbonates: 15 to 35 inches
Depth to the base of the cambic horizon: 24 to 50 inches

Ap and A horizons:
Hue—10YR or N
Value—2 or 3
Chroma—0 to 2
Texture—silty clay loam

Content of rock fragments—none
Reaction—slightly acid to slightly alkaline

Bg, Bkg, or BCkg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—3 to 6
Chroma—1 or 2
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—neutral to moderately alkaline

Cg or 2Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—5 or 6
Chroma—1 or 2
Texture—silt loam or loam
Content of rock fragments—0 to 7 percent
Reaction—slightly alkaline or moderately alkaline

244A—Hartsburg silty clay loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains and ground moraines
Position on the landform: Toeslopes

Map Unit Composition

Hartsburg and similar soils: 95 percent
Dissimilar soils: 5 percent

Soils of Minor Extent

Similar soils:
- Soils that have a limy surface layer
- Soils that have a sandy substratum
- Soils that have a very thick dark surface layer
- Soils that are deep to lime

Dissimilar soils:
- The somewhat poorly drained Brenton and Raub soils on slight rises; in positions above those of the Hartsburg soil

Properties and Qualities of the Hartsburg Soil

Parent material: Loess over silty lacustrine deposits
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4.5 to 6.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: At the surface, January through May
Frequency, duration, and most likely period of ponding: Frequent for brief periods from January through May
Flooding: None
Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland category: Prime farmland where drained
Hydric soil status: Hydric

Hoyleton Series

Taxonomic classification: Fine, smectitic, mesic Aquollic Hapludalfs

Typical Pedon

Hoyleton silt loam, 0 to 2 percent slopes, at an elevation of 655 feet above mean sea level; Shelby County, Illinois; 295 feet south and 2,160 feet east of the northwest corner of sec. 15, T. 9 N., R. 5 E.; USGS Shumway, Illinois, topographic quadrangle; lat. 39 degrees 13 minutes 46.1 seconds N. and long. 88 degrees 37 minutes 48.4 seconds W.; UTM Zone 16S, 0359299E 4343508N, NAD 83:

Ap—0 to 8 inches; dark brown (10YR 3/3) and very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; many very fine roots; few fine rounded iron-manganese oxide concretions throughout; moderately acid; abrupt smooth boundary.

E—8 to 11 inches; brown (10YR 5/3) silt loam; weak thin platy structure; friable; common very fine and few fine roots; common faint dark grayish brown (10YR 4/2) organic stains lining root channels and pores; few fine rounded iron-manganese oxide concretions and stains throughout; strongly acid; clear smooth boundary.

BEt—11 to 14 inches; brown (10YR 5/3) silty clay loam; weak fine subangular blocky structure; friable; few very fine roots; few faint grayish brown (10YR 5/2) clay films and few distinct very pale brown (10YR 7/3) silt coatings on faces of peds; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded iron-manganese oxide concretions throughout; strongly acid; clear smooth boundary.

Bt1—14 to 20 inches; brown (10YR 5/3) silty clay loam; strong fine subangular blocky structure; firm; few very fine roots; many distinct grayish brown (10YR 5/2) clay films and many prominent very pale brown (10YR 8/2) silt coatings on faces of peds; common medium prominent yellowish red (5YR 5/6 and 5/8) masses of iron accumulation in the matrix; common fine rounded iron-manganese oxide concretions throughout; strongly acid; clear smooth boundary.

Bt2—20 to 33 inches; brown (10YR 5/3) silty clay; moderate medium subangular blocky structure; firm; few fine and very fine roots; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few distinct dark gray (10YR 4/1) clay films lining root channels and pores; common fine prominent yellowish red (5YR 5/8) masses of iron accumulation and common medium faint light brownish gray (2.5Y 6/2) iron depletions in the matrix; common fine rounded iron-manganese oxide concretions throughout; strongly acid; gradual smooth boundary.

2Bt3—33 to 39 inches; pale brown (10YR 6/3) silty clay loam; weak coarse subangular blocky structure; firm; few fine and very fine roots; few faint grayish brown (10YR 5/2) clay films on faces of peds; few faint very dark grayish brown (10YR 3/2) organo-clay films lining root channels and pores; many medium prominent yellowish brown (10YR 5/8) masses of iron accumulation and common medium faint light brownish gray (2.5Y 6/2) iron depletions in the matrix; common fine

rounded iron-manganese oxide concretions throughout; about 10 percent fine sand; strongly acid; gradual smooth boundary.

2BCt—39 to 54 inches; pale brown (10YR 6/3) silt loam; weak very coarse subangular blocky structure; friable; few very fine roots; few faint dark gray (10YR 4/1) clay films lining root channels and pores; few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation and few fine faint yellowish brown (10YR 5/4) masses of iron and manganese accumulation in the matrix; common medium faint grayish brown (2.5Y 5/2) iron depletions in the matrix; common fine rounded iron-manganese oxide concretions throughout; about 15 percent fine sand; slightly acid; gradual smooth boundary.

2Cg—54 to 80 inches; brown (7.5YR 5/2) silt loam; massive; friable; many medium prominent strong brown (7.5YR 4/6) and many medium distinct brown (7.5YR 4/4) masses of iron and manganese accumulation in the matrix; few fine rounded iron-manganese oxide concretions throughout; about 25 percent fine sand; slightly acid.

Range in Characteristics

Thickness of the loess: 30 to 55 inches
Depth to carbonates: More than 60 inches
Depth to the base of the argillic horizon: More than 36 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam
Content of rock fragments—none
Reaction—very strongly acid to moderately acid, except in areas that have been limed

E, EB, or BE horizon (where present):
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Texture—silt loam
Content of rock fragments—none
Reaction—very strongly acid to moderately acid, except in areas that have been limed

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 to 4
Texture—silty clay loam or silty clay
Content of rock fragments—none
Reaction—very strongly acid or strongly acid

2BC horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—1 to 4
Texture—silt loam, loam, silty clay loam, or clay loam
Content of rock fragments—0 to 5 percent
Reaction—strongly acid to slightly acid

2C horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—5 or 6
Chroma—1 to 4
Texture—silty clay loam, clay loam, or silt loam
Content of rock fragments—0 to 5 percent
Reaction—moderately acid to neutral

3A—Hoyleton silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on the landform: Summits

Map Unit Composition

Hoyleton and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that have less clay in the subsoil
- Soils that have a thick dark surface layer
- Soils that have a thin light-colored surface layer
- Soils that have a sandy substratum

Dissimilar soils:
- The poorly drained Cisne soils on flats; in positions above those of the Hoyleton soil

Properties and Qualities of the Hoyleton Soil

Parent material: Loess over loamy pedisediment
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.5 to 3.5 percent
Shrink-swell potential: High
Depth and months of the highest apparent seasonal high water table: 1 foot, January through May
Ponding: None
Flooding: None
Potential for frost action: Moderate
Hazard of corrosion: High for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Landes Series

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls

Typical Pedon

Landes fine sandy loam, 0 to 2 percent slopes, frequently flooded, at an elevation of 440 feet above mean sea level; Cass County, Illinois; 99 feet south and 990 feet west of the northeast corner of sec. 4, T. 18 N., R. 11 W.; USGS Clear Lake, Illinois, topographic quadrangle; lat. 40 degrees 02 minutes 51.2 seconds N. and long. 90 degrees 19 minutes 58.4 seconds W.; UTM Zone 15T, 0727519E 4436443N, NAD 83:

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) fine sandy loam, brown (10YR 4/3) dry; weak fine subangular blocky structure parting to weak fine granular; friable; few very fine roots; few fine very dark gray (10YR 3/1) organic coatings on faces of peds; neutral; abrupt smooth boundary.

A—5 to 14 inches; very dark grayish brown (10YR 3/2) fine sandy loam, brown (10YR 5/3) dry; weak medium subangular blocky structure; friable; few very fine roots; neutral; clear smooth boundary.

AB—14 to 19 inches; dark brown (10YR 3/3) loam, brown (10YR 5/3) dry; weak fine and medium subangular blocky structure; friable; few very fine roots; many faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; neutral; clear smooth boundary.

Bw1—19 to 23 inches; brown (10YR 4/3) loam; weak fine and medium subangular blocky structure; friable; few very fine roots; many faint dark brown (10YR 3/3) and few faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; neutral; clear smooth boundary.

Bw2—23 to 28 inches; brown (10YR 4/3) fine sandy loam; weak medium subangular blocky structure; friable; few very fine roots; common faint dark brown (10YR 3/3) organic coatings on faces of peds; neutral; clear smooth boundary.

Bw3—28 to 32 inches; brown (10YR 4/3) and dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; very friable; few very fine roots; common faint dark brown (10YR 3/3) organic coatings on faces of peds; less than 2 percent fine gravel; neutral; clear smooth boundary.

BC—32 to 36 inches; dark yellowish brown (10YR 4/4) and brown (10YR 4/3) loamy sand; weak medium subangular blocky structure; very friable; few very fine roots; 5 percent fine gravel; neutral; clear smooth boundary.

C—36 to 60 inches; yellowish brown (10YR 5/4) sand; single grain; loose; 2 percent fine gravel; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches
Depth to carbonates: More than 22 inches
Depth to the base of the cambic horizon: 22 to 40 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—2 or 3
Texture—fine sandy loam
Content of rock fragments—0 to 15 percent
Reaction—moderately acid to moderately alkaline

AB or Bw horizon:
Hue—10YR
Value—3 to 5

Chroma—3 or 4
Texture—loam, fine sandy loam, or very fine sandy loam
Content of rock fragments—0 to 9 percent
Reaction—moderately acid to moderately alkaline

BC or C horizon:
Hue—10YR
Value—4 or 5
Chroma—1 to 4
Texture—stratified sand, sandy loam, fine sand, fine sandy loam, very fine sand, and very fine sandy loam
Content of rock fragments—0 to 9 percent
Reaction—moderately acid to moderately alkaline

3304A—Landes fine sandy loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood-plain steps and natural levees

Map Unit Composition

Landes and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that are subject to occasional flooding
- Soils that have a light-colored surface layer
- Soils that have more clay in the subsoil

Dissimilar soils:
- Soils that are subject to rare flooding
- The somewhat poorly drained Brouillett, Shoals, and Tice soils in dips and swales; in positions below those of the Landes soil
- The poorly drained Sawmill soils in swales and backswamps

Properties and Qualities of the Landes Soil

Parent material: Loamy alluvium over stratified sandy alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately rapid
Permeability below a depth of 60 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 5.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.5 percent
Shrink-swell potential: Low
Ponding: None
Frequency and most likely period of flooding: Frequent, November through June
Potential for frost action: Moderate
Hazard of corrosion: Low for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Moderately high

Interpretive Groups

Land capability classification: 3w

Prime farmland category: Prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

830—Landfill

- This map unit consists of accumulations of garbage and other refuse, which typically are covered by a layer of compacted earth. Slopes range from 1 to more than 45 percent. Included in mapping, near the boundaries, are natural soils, such as Senachwine soils in sloping areas and Lawson soils on flood plains.

Lawson Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls

Typical Pedon

Lawson silt loam, 0 to 2 percent slopes, frequently flooded, at an elevation of 638 feet above mean sea level; Whiteside County, Illinois; 170 feet north and 1,190 feet east of the southwest corner of sec. 18, T. 21 N., R. 7 E.; USGS Sterling, Illinois, topographic quadrangle; lat. 41 degrees 48 minutes 06.2 seconds N. and long. 89 degrees 44 minutes 35.1 seconds W.; UTM Zone 16T, 0272111E 4631400N, NAD 83:

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; friable; neutral; abrupt smooth boundary.

A1—8 to 17 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure parting to moderate fine granular; friable; many faint black (10YR 2/1) organic coatings on faces of peds; slightly acid; gradual smooth boundary.

A2—17 to 30 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure parting to moderate fine granular; friable; few faint black (10YR 2/1) organic coatings on faces of peds; few fine faint brown (10YR 4/3) masses of iron and manganese accumulation in the matrix; slightly acid; clear smooth boundary.

A3—30 to 35 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; friable; few faint very dark gray (10YR 3/1) organic coatings on faces of peds; few fine faint dark grayish brown (10YR 4/2) iron depletions and few fine faint brown (10YR 4/3) masses of iron and manganese accumulation in the matrix; slightly acid; clear smooth boundary.

ACg—35 to 44 inches; dark grayish brown (10YR 4/2) silt loam; weak medium subangular blocky structure; friable; many faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

Cg1—44 to 51 inches; grayish brown (2.5Y 5/2) silt loam; massive; friable; few fine faint gray (10YR 5/1) iron depletions in the matrix; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

Cg2—51 to 60 inches; grayish brown (10YR 5/2) and dark grayish brown (2.5Y 4/2) loam; massive; friable; few fine faint gray (10YR 5/1) iron depletions in the matrix; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 36 inches
Depth to carbonates: Typically more than 60 inches

Other features: Some pedons have an AC horizon, which is a transitional zone having properties of both the A and C horizons.

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam; silty clay loam included in some pedons
Content of rock fragments—0 to 1 percent
Reaction—slightly acid or neutral

C or Cg horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—1 to 3
Texture—silt loam, silty clay loam, or loam; thin strata of coarser textures in some pedons
Content of rock fragments—0 to 3 percent
Reaction—neutral or slightly alkaline

3451A—Lawson silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Lawson and similar soils: 85 percent
Dissimilar soils: 15 percent

Soils of Minor Extent

Similar soils:
- Soils that are subject to occasional flooding
- Soils that have a loamy subsoil
- Soils that have a thin surface layer

Dissimilar soils:
- Soils that are subject to rare flooding
- The well drained Landes, Ross, and Wirt soils on flood-plain steps; in positions above those of the Lawson soil
- The poorly drained Sawmill soils in swales and backswamps

Properties and Qualities of the Lawson Soil

Parent material: Silty alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.5 to 7.0 percent
Shrink-swell potential: Low
Depth and months of the highest apparent seasonal high water table: 1 foot, January through May
Ponding: None
Frequency and most likely period of flooding: Frequent, November through June
Potential for frost action: High

Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w
Prime farmland category: Prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

Lenzburg Series

Taxonomic classification: Fine-loamy, mixed, active, calcareous, mesic Haplic Udarents
Taxadjunct features: The Lenzburg soils in this survey area do not have fragments of diagnostic horizons within the profile. This difference, however, does not significantly affect the use and management of the soils. These soils are classified as fine-loamy, mixed, active, calcareous, mesic Typic Udorthents.

Typical Pedon

Lenzburg loam, 7 to 20 percent slopes, at an elevation of 640 feet above mean sea level; Coles County, Illinois; 2,200 feet east and 310 feet north of the southwest corner of sec. 32, T. 13 N., R. 10 E.; USGS Ashmore, Illinois, topographic quadrangle; lat. 39 degrees 31 minutes 18.4 seconds N. and long. 88 degrees 06 minutes 44.3 seconds W.; UTM Zone 16S, 0404395E 4375271N, NAD 83:

Ap—0 to 8 inches; mixed very dark grayish brown (10YR 3/2), gray (10YR 5/1), and dark yellowish brown (10YR 4/4) loam; weak coarse granular structure; firm; few fine roots; few distinct very dark brown (10YR 2/2) organic coatings in channels; about 10 percent gravel; strongly effervescent; slightly alkaline; gradual smooth boundary.
C1—8 to 13 inches; mixed dark yellowish brown (10YR 4/4) and dark grayish brown (10YR 4/2) clay loam; massive; firm; very few fine roots; about 10 percent gravel; strongly effervescent; slightly alkaline; gradual smooth boundary.
C2—13 to 24 inches; mixed brown (10YR 4/3) and dark grayish brown (10YR 4/2) clay loam; massive; very firm; about 10 percent gravel; strongly effervescent; slightly alkaline; gradual smooth boundary.
C3—24 to 39 inches; mixed brown (10YR 4/3), grayish brown (10YR 5/2), and yellowish brown (10YR 5/6) clay loam; massive; very firm; about 15 percent gravel; strongly effervescent; slightly alkaline; gradual smooth boundary.
C4—39 to 60 inches; mixed grayish brown (10YR 5/2) and dark yellowish brown (10YR 4/4) clay loam; massive; very firm; about 13 percent gravel; strongly effervescent; slightly alkaline.

Range in Characteristics

Depth to carbonates: 0 to 20 inches

Ap or A horizon:
Hue—5YR, 10YR, 2.5Y, or 5Y
Value—2 to 6 (6 or 7 dry)
Chroma—1 to 6
Texture—loam or gravelly loam
Content of rock fragments—2 to 35 percent
Reaction—neutral to moderately alkaline

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—1 to 6
Texture—loam or clay loam
Content of rock fragments—2 to 15 percent
Reaction—slightly alkaline or moderately alkaline

871B—Lenzburg gravelly loam, 1 to 5 percent slopes

Setting

Landform: Sanitary landfills and fills
Position on the landform: Shoulders and summits

Map Unit Composition

Lenzburg and similar soils: 95 percent
Dissimilar components: 5 percent

Components of Minor Extent

Similar soils:
- Soils that have fragments of stockpiled subsoil material within a depth of 40 inches

Dissimilar components:
- Areas of rock outcrop
- Areas of landfill

Properties and Qualities of the Lenzburg Soil

Parent material: Loamy spoil or earthy fill
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Low
Ponding: None
Flooding: None
Potential for frost action: Moderate
Hazard of corrosion: Low for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 6s
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

871D—Lenzburg loam, 7 to 20 percent slopes

Setting

Landform: Fills and sanitary landfills
Position on the landform: Backslopes

Map Unit Composition

Lenzburg and similar soils: 95 percent
Dissimilar components: 5 percent

Components of Minor Extent

Similar soils:
- Soils that have fragments of stockpiled subsoil material within a depth of 40 inches

Dissimilar components:
- Areas of rock outcrop
- Areas of landfill

Properties and Qualities of the Lenzburg Soil

Parent material: Loamy mine spoil or earthy fill
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Low
Ponding: None
Flooding: None
Potential for frost action: Moderate
Hazard of corrosion: Low for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Moderate

Interpretive Groups

Land capability classification: 6s
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

M-W—Miscellaneous water

- This map unit consists of manmade bodies of water that are used for industrial, sanitary, or mining applications and that contain water most of the year. Typically, the water is not potable and is unsuitable for either fishing or swimming.

Martinsville Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Martinsville silt loam, 2 to 5 percent slopes, at an elevation of about 695 feet above mean sea level; Champaign County, Illinois; about 250 feet south and 1,430 feet east of the northwest corner of sec. 36, T. 21 N., R. 7 E.; USGS Rising, Illinois, topographic quadrangle; lat. 40 degrees 14 minutes 14 seconds N. and long. 88 degrees 21 minutes 37 seconds W.; UTM Zone 16T, 0384283E 4454978N, NAD 83:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak very fine and fine granular structure; friable; common very fine roots; moderately acid; abrupt smooth boundary.

BE—9 to 12 inches; yellowish brown (10YR 5/4) silt loam; moderate fine angular blocky structure; friable; common very fine roots; few faint brown (10YR 4/3) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt1—12 to 19 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium prismatic structure parting to strong fine angular blocky; firm; common very fine roots; common distinct dark brown (10YR 3/3) organo-clay films on faces of peds; common distinct brown (10YR 4/3) clay films on faces of peds; few fine distinct yellowish brown (10YR 5/6) masses of iron in the matrix; moderately acid; clear smooth boundary.

Bt2—19 to 28 inches; strong brown (7.5YR 4/6) clay loam; weak medium prismatic structure parting to strong medium angular blocky; firm; many very fine roots; many distinct dark brown (7.5YR 3/4) clay films on faces of peds and in pores; few fine faint yellowish brown (10YR 5/6) masses of iron in the matrix; few fine rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; moderately acid; clear smooth boundary.

Bt3—28 to 36 inches; strong brown (7.5YR 4/6) sandy clay loam; moderate medium and coarse angular blocky structure; firm; common very fine roots; many distinct dark brown (7.5YR 3/4) clay films on faces of peds and in pores; few fine faint yellowish brown (10YR 5/6) masses of iron in the matrix; few fine rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; moderately acid; clear smooth boundary.

Bt4—36 to 45 inches; yellowish brown (10YR 5/4) sandy clay loam; weak coarse angular blocky structure; firm; few very fine roots; many distinct dark brown (10YR 3/3) organo-clay films on faces of peds; few fine distinct yellowish brown (10YR 5/6) masses of iron in the matrix; common fine rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; moderately acid; abrupt smooth boundary.

Bt5—45 to 57 inches; yellowish brown (10YR 5/4), stratified silt loam; weak coarse angular blocky structure; friable; common distinct brown (10YR 4/3) clay films on faces of peds; common fine distinct yellowish brown (10YR 5/6) masses of iron in the matrix; common fine rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; moderately acid; abrupt smooth boundary.

BCt—57 to 69 inches; yellowish brown (10YR 5/4), stratified silt loam, loam, and sandy loam; weak coarse angular blocky structure; friable; few distinct brown (10YR 4/3) clay films on vertical faces of peds; common fine distinct yellowish brown (10YR 5/6) masses of iron in the matrix; common fine faint pale brown (10YR 6/3) iron depletions in the matrix; common fine rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; moderately acid; clear smooth boundary.

BC—69 to 80 inches; light yellowish brown (10YR 6/4), stratified loam and sandy loam; massive; friable; slightly acid.

Range in Characteristics

Thickness of the loess: Less than 20 inches
Depth to carbonates: 40 to 80 inches
Depth to the base of the argillic horizon: 40 to 70 inches

Ap or A horizon:
Hue—10YR
Value—3 to 5; 3 in A horizons that are less than 6 inches thick
Chroma—2 to 6
Texture—silt loam or loam
Content of rock fragments—none
Reaction—moderately acid to neutral

E or BE horizon (where present):
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam or loam
Content of rock fragments—0 to 10 percent
Reaction—strongly acid to neutral

Bt horizon:
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—3 to 6
Texture—loam, clay loam, sandy clay loam, sandy loam, or silt loam
Content of rock fragments—0 to 10 percent
Reaction—strongly acid to neutral

BCt, BC, C, or 2C horizon:
Hue—10YR
Value—3 to 6
Chroma—3 to 6
Texture—fine sandy loam, sandy loam, loam, or silt loam; stratified with these textures or coarser textures in some pedons
Content of rock fragments—0 to 10 percent
Reaction—moderately acid to moderately alkaline

570B—Martinsville silt loam, 2 to 5 percent slopes

Setting

Landform: Outwash terraces and outwash plains
Position on the landform: Summits and shoulders

Map Unit Composition

Martinsville and similar soils: 94 percent
Dissimilar soils: 6 percent

Soils of Minor Extent

Similar soils:
- Soils that have a subsoil of silty clay loam
- Soils that are eroded
- Soils that are subject to very rare flooding

Dissimilar soils:
- The somewhat poorly drained Starks soils on footslopes; in positions below those of the Martinsville soil
- The poorly drained Drummer soils in swales

Properties and Qualities of the Martinsville Soil

Parent material: Thin loess over stratified loamy outwash
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate

Ponding: None
Flooding: None
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

570C2—Martinsville loam, 5 to 12 percent slopes, eroded

Setting

Landform: Outwash terraces and outwash plains
Position on the landform: Backslopes

Map Unit Composition

Martinsville and similar soils: 95 percent
Dissimilar soils: 5 percent

Soils of Minor Extent

Similar soils:
- Soils that have a subsoil of silty clay loam
- Soils that are not eroded

Dissimilar soils:
- The somewhat poorly drained Starks soils on footslopes; in positions below those of the Martinsville soil
- The poorly drained Drummer soils in swales
- The poorly drained Sawmill soils on flood plains

Properties and Qualities of the Martinsville Soil

Parent material: Stratified loamy outwash
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Ponding: None
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3e

Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

7570B—Martinsville silt loam, 2 to 5 percent slopes, rarely flooded

Setting

Landform: Stream terraces
Position on the landform: Summits and shoulders

Map Unit Composition

Martinsville and similar soils: 94 percent
Dissimilar soils: 6 percent

Soils of Minor Extent

Similar soils:
- Soils that are subject to very rare flooding
- Soils that have a sandy subsoil
- Soils that are underlain by sand and gravel
- Soils that have a subsoil of silty clay loam

Dissimilar soils:
- The somewhat poorly drained Shoals and poorly drained Sawmill soils on flood plains

Properties and Qualities of the Martinsville Soil

Parent material: Thin loess over stratified sandy outwash
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Ponding: None
Frequency and most likely period of flooding: Rare, November through June
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Milford Series

Taxonomic classification: Fine, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon

Milford silty clay loam, in an area of Drummer-Milford silty clay loams, 0 to 2 percent slopes, at an elevation of 646 feet above mean sea level; Moultrie County, Illinois;

1,170 feet north and 1,605 feet west of the southeast corner of sec. 20, T. 13 N., R. 6 E.; USGS Sullivan, Illinois, topographic quadrangle; lat. 39 degrees 33 minutes 10.7 seconds N. and long. 88 degrees 33 minutes 09.7 seconds W.; UTM Zone 16S, 0366594E 4379299N, NAD 83:

Ap—0 to 9 inches; black (2.5Y 2.5/1) silty clay loam; moderate fine subangular blocky structure parting to moderate fine granular; friable; common very fine and fine roots throughout; slightly acid; abrupt smooth boundary.

A—9 to 14 inches; very dark gray (2.5Y 3/1) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots throughout; many distinct black (2.5Y 2.5/1) organo-clay films on vertical faces of peds; common fine and medium faint dark gray (2.5Y 4/1) iron depletions in the matrix; neutral; clear wavy boundary.

Btg1—14 to 25 inches; gray (10YR 5/1) silty clay; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots throughout; many distinct very dark gray (10YR 3/1) clay films on faces of peds; few fine and medium prominent yellowish brown (10YR 5/6) masses of iron and few medium distinct yellowish brown (10YR 5/4) masses of iron and manganese oxide in the matrix; neutral; clear wavy boundary.

Btg2—25 to 45 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common very fine roots throughout and on faces of peds; many distinct gray (2.5Y 5/1) clay films, common distinct dark gray (10YR 4/1) clay films, and few distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; many fine and medium prominent yellowish brown (10YR 5/6) masses of iron in the matrix; neutral; clear wavy boundary.

2Btg3—45 to 75 inches; 85 percent grayish brown (10YR 5/2) and 15 percent yellowish brown (10YR 5/6), stratified silt loam; weak coarse prismatic structure; firm; few very fine and fine roots throughout; common distinct gray (10YR 5/1) clay films on faces of peds and few prominent black (2.5Y 2.5/1) organo-clay films lining root channels and pores; few fine prominent black (2.5Y 2.5/1) masses of iron and manganese oxide in the matrix; slightly alkaline; abrupt wavy boundary.

2BCg—75 to 93 inches; gray (2.5Y 6/1) silt loam; weak very coarse prismatic structure; firm; few very fine roots throughout; many prominent black (2.5Y 2.5/1) organo-clay films lining root channels and pores; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches
Thickness of the loess or silty lacustrine deposits: 40 to 60 inches
Depth to carbonates: More than 60 inches
Depth to the base of the cambic horizon: More than 36 inches

Ap or A horizon:
Hue—10YR, 2.5Y, or N
Value—2 to 3
Chroma—0 to 2
Texture—silty clay loam
Content of rock fragments—0 to 1 percent
Reaction—moderately acid to neutral

Btg horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 2
Texture—silty clay or silty clay loam

Content of rock fragments—0 to 1 percent
Reaction—slightly acid to slightly alkaline

2Btg and 2BCg horizons:
Hue—10YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 2
Texture—stratified silt loam or clay loam
Content of rock fragments—0 to 5 percent
Reaction—slightly acid to moderately alkaline

722A—Drummer-Milford silty clay loams, 0 to 2 percent slopes

Setting

Landform: Outwash plains
Position on the landform: Toeslopes and depressions

Map Unit Composition

Drummer and similar soils: 60 percent
Milford and similar soils: 35 percent
Dissimilar soils: 5 percent

Soils of Minor Extent

Similar soils:
- Soils that have a very thick dark surface layer
- Soils that have a limy surface layer
- Soils that have a loamy subsoil
- Soils that are subject to very rare flooding
- Soils that are ponded for long periods

Dissimilar soils:
- The somewhat poorly drained Raub and Flanagan soils on knobs and slight rises; in positions above those of the Drummer and Milford soils
- Soils that are subject to occasional flooding

Properties and Qualities of the Drummer Soil

Parent material: Loess over stratified loamy outwash
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4.5 to 7.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: At the surface, January through May
Frequency, duration, and most likely period of ponding: Frequent for brief periods from January through May
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Properties and Qualities of the Milford Soil

Parent material: Loess over silty and clayey lacustrine deposits
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4.5 to 6.0 percent
Shrink-swell potential: High
Depth and months of the highest apparent seasonal high water table: At the surface, January through May
Frequency, duration, and most likely period of ponding: Frequent for brief periods from January through May
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Moderate

Interpretive Groups

Land capability classification: Drummer—2w; Milford—2w
Prime farmland category: Prime farmland where drained
Hydric soil status: Drummer—hydric; Milford—hydric

Millbrook Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Udollic Endoaqualfs
Taxadjunct features: The Millbrook soils in this survey area are less gray in the upper part of the subsoil than is defined as the range for the series. This difference, however, does not significantly affect the use and management of the soils. These soils are classified as fine-silty, mixed, superactive, mesic Aquollic Hapludalfs.

Typical Pedon

Millbrook silt loam, 0 to 2 percent slopes, at an elevation of about 660 feet above mean sea level; Champaign County, Illinois; 55 feet north and 2,240 feet west of the southeast corner of sec. 36, T. 17 N., R. 9 E.; USGS Villa Grove NW, Illinois, topographic quadrangle; lat. 39 degrees 52 minutes 49 seconds N. and long. 88 degrees 07 minutes 51 seconds W.; UTM Zone 16S, 0403298E 4415084N, NAD 83:

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine and medium granular structure; friable; few fine rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; neutral; abrupt smooth boundary.

E—7 to 14 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium platy structure parting to moderate medium granular; friable; many distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few fine rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; many fine faint brown (10YR 4/3) masses of iron and manganese and few fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; neutral; clear smooth boundary.

Bt—14 to 21 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine subangular blocky structure; friable; few distinct dark gray (10YR 4/1) clay films on faces of peds and in pores; few medium irregular black (7.5YR 2.5/1) very weakly

cemented iron-manganese oxide nodules throughout; few fine distinct yellowish brown (10YR 5/8) masses of iron in the matrix; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; moderately acid; clear smooth boundary.

Btg1—21 to 35 inches; 70 percent gray (10YR 5/1) and 30 percent yellowish brown (10YR 5/6) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few distinct dark gray (10YR 4/1) clay films on faces of peds and in pores; common medium irregular black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; moderately acid; clear smooth boundary.

2Btg2—35 to 44 inches; gray (10YR 5/1) clay loam; moderate medium prismatic structure; friable; few distinct dark gray (10YR 4/1) clay films on faces of peds; few distinct very dark gray (10YR 3/1) organo-clay films in pores; few medium irregular black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; many coarse prominent yellowish brown (10YR 5/6) masses of iron in the matrix; slightly acid; clear smooth boundary.

2BCg—44 to 55 inches; 60 percent gray (10YR 5/1) and 40 percent yellowish brown (10YR 5/4), stratified clay loam and sandy loam; weak medium prismatic structure; friable; few medium irregular black (7.5YR 2.5/1) iron-manganese oxide coatings on faces of peds; common medium prominent yellowish brown (10YR 5/8) masses of iron in the matrix; 10 percent fine gravel in the clay loam strata; neutral; clear smooth boundary.

2Cg1—55 to 73 inches; 60 percent gray (10YR 5/1) and 40 percent yellowish brown (10YR 5/4) sandy loam stratified with thin lenses of coarse sand; massive; very friable; 5 percent fine gravel; neutral; abrupt smooth boundary.

2Cg2—73 to 80 inches; 60 percent pale brown (10YR 6/3) and 40 percent light brownish gray (10YR 6/2) sandy loam; massive; very friable; 5 percent fine gravel; slightly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the dark surface layer: 7 to 9 inches
Thickness of the loess: 24 to 40 inches
Depth to carbonates: More than 40 inches
Depth to the base of the argillic horizon: 40 to 60 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

E horizon (where present):
Hue—10YR
Value—4 to 6
Chroma—2 or 3
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

Bt or Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—silty clay loam or silt loam

Content of rock fragments—none
Reaction—strongly acid to neutral

2Btg or 2BCg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—sandy loam, sandy clay loam, loam, or clay loam; typically with thin strata of sand or silt loam
Content of rock fragments—0 to 10 percent
Reaction—moderately acid to slightly alkaline

2Cg horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—1 to 8
Texture—stratified sandy loam, loam, clay loam, sandy clay loam, or silt loam; thin strata of coarser textures in some pedons
Content of rock fragments—0 to 10 percent
Reaction—neutral to moderately alkaline

219A—Millbrook silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains and outwash terraces
Position on the landform: Footslopes and summits

Map Unit Composition

Millbrook and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that are subject to very rare flooding
- Soils that have a thin light-colored surface layer

Dissimilar soils:
- The moderately well drained Somonauk soils on gently sloping shoulders
- The poorly drained Drummer soils in swales
- The poorly drained Brooklyn soils in depressions

Properties and Qualities of the Millbrook Soil

Parent material: Loess over stratified loamy outwash
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.5 to 3.5 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 1 foot, January through May
Ponding: None
Flooding: None
Potential for frost action: High

Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Peotone Series

Taxonomic classification: Fine, smectitic, mesic Cumulic Vertic Endoaquolls

Typical Pedon

Peotone silty clay loam, 0 to 2 percent slopes, at an elevation of 692 feet above mean sea level; Macon County, Illinois; 310 feet north and 2,435 feet west of the center of sec. 13, T. 14 N., R. 3 E.; USGS Dalton City, Illinois, topographic quadrangle; lat. 39 degrees 39 minutes 40.7 seconds N. and long. 88 degrees 49 minutes 43.6 seconds W.; UTM Zone 16T, 0343123E 4391766N, NAD 83:

Ap—0 to 6 inches; black (5Y 2.5/1) silty clay loam, dark gray (10YR 4/1) dry; moderate very fine subangular blocky structure; firm; neutral; clear smooth boundary.

A—6 to 14 inches; black (5Y 2.5/1) silty clay loam, dark gray (10YR 4/1) dry; moderate very fine subangular blocky structure; moderate medium angular blocky compaction zone in the upper 2 inches; firm; neutral; clear smooth boundary.

AB—14 to 22 inches; very dark gray (5Y 3/1) silty clay loam, gray (5Y 5/1) dry; moderate fine angular blocky structure; firm; many faint black (5Y 2.5/1) organic coatings on faces of peds; neutral; clear smooth boundary.

BA—22 to 28 inches; very dark gray (5Y 3/1) silty clay loam, gray (5Y 5/1) dry; moderate fine prismatic structure; firm; few medium rounded prominent black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; neutral; clear smooth boundary.

Bg1—28 to 36 inches; dark gray (5Y 4/1) silty clay loam; weak medium prismatic structure; firm; few fine faint gray (5Y 5/1) iron depletions in the matrix; few medium rounded prominent black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; neutral; clear smooth boundary.

Bg2—36 to 44 inches; gray (5Y 5/1) silty clay loam; weak medium prismatic structure; firm; common fine prominent light olive brown (2.5Y 5/4) masses of iron and manganese accumulation and yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded prominent black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; neutral; gradual smooth boundary.

BCg—44 to 60 inches; gray (5Y 5/1) silty clay loam; weak medium prismatic structure; firm; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation and light yellowish brown (2.5Y 6/4) masses of iron and manganese oxide accumulation in the matrix; krotovina making up 11 percent of the horizon; violently effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 36 inches
Thickness of the loess or colluvial sediment: More than 40 inches
Depth to carbonates: More than 30 inches
Depth to the base of the cambic horizon: More than 38 inches

Ap and A horizons:
Hue—10YR, 2.5Y, 5Y, or N
Value—2 to 3
Chroma—0 or 1
Texture—silty clay loam
Content of rock fragments—typically none
Reaction—moderately acid to slightly alkaline

AB or BA horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—2 to 3
Chroma—0 or 1
Texture—silty clay loam or silty clay
Content of rock fragments—typically none
Reaction—moderately acid to slightly alkaline

Bg horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—2 to 6
Chroma—0 to 2
Texture—silty clay loam or silty clay
Content of rock fragments—0 to 1 percent
Reaction—slightly acid to slightly alkaline

BCg or Cg horizon (where present):
Hue—10YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 2
Texture—silt loam or silty clay loam
Content of rock fragments—0 to 1 percent
Reaction—neutral to moderately alkaline

330A—Peotone silty clay loam, 0 to 2 percent slopes

Setting

Landform: Depressions and closed depressions

Map Unit Composition

Peotone and similar soils: 93 percent
Dissimilar soils: 7 percent

Soils of Minor Extent

Similar soils:
- Soils that have a limy surface layer
- Soils that have a thin surface layer
- Soils that have less clay in the subsoil
- Soils that are subject to ponding for long periods of time

Dissimilar soils:
- The somewhat poorly drained Millbrook and Raub soils on slight rises; in positions above those of the Peotone soil

Properties and Qualities of the Peotone Soil

Parent material: Loess and/or colluvium
Drainage class: Very poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow

Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.3 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4.5 to 7.0 percent
Shrink-swell potential: High
Depth and months of the highest apparent seasonal high water table: At the surface, January through June
Frequency, duration, and most likely period of ponding: Frequent for brief periods from January through June
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Moderate

Interpretive Groups

Land capability classification: 3w
Prime farmland category: Prime farmland where drained
Hydric soil status: Hydric

864—Pits, quarry

- This map unit consists of areas from which crushed limestone gravel and agricultural lime are quarried. The map unit occurs near Charleston, Illinois.

865—Pits, gravel

- This map unit consists of nearly level and gently sloping areas from which gravel has been extracted. The pits have nearly vertical sidewalls. Some pits are active, and others have been abandoned. Some contain water.

Proctor Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiudolls

Typical Pedon

Proctor silt loam, 2 to 5 percent slopes, at an elevation of 682 feet above mean sea level; Edgar County, Illinois; about 1 mile southwest of Redmon; 1,500 feet west and 100 feet south of the northeast corner of sec. 32, T. 14 N., R. 13 W.; USGS Brocton, Illinois, topographic quadrangle; lat. 39 degrees 37 minutes 43 seconds N. and long. 87 degrees 52 minutes 38.9 seconds W.; UTM Zone 16S, 0424692E 4386910N, NAD 83:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine and medium granular structure; friable; common very fine roots; neutral; clear smooth boundary.
A—9 to 13 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate very fine and fine subangular blocky structure parting to moderate very fine granular; friable; common very fine roots; moderately acid; clear smooth boundary.
Bt1—13 to 17 inches; dark yellowish brown (10YR 4/4) silt loam; moderate very fine and fine subangular blocky structure; friable; common very fine roots; many

distinct dark brown (10YR 3/3) organo-clay films on faces of peds; moderately acid; clear smooth boundary.

Bt2—17 to 25 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; few very fine roots; many faint brown (10YR 4/3) clay films on faces of peds; moderately acid; clear smooth boundary.

2Bt3—25 to 33 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; firm; few very fine roots; common faint brown (10YR 4/3) clay films on faces of peds; about 1 percent fine gravel; moderately acid; clear smooth boundary.

2Bt4—33 to 45 inches; brown (7.5YR 4/4) sandy loam; moderate medium and coarse prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; few faint brown (10YR 4/3) clay films on faces of peds and few distinct very dark grayish brown (10YR 3/2) organo-clay films in root channels and pores; about 1 percent fine gravel; moderately acid; clear smooth boundary.

2BC—45 to 52 inches; brown (7.5YR 4/4) sandy loam stratified with thin lenses of loamy sand; moderate coarse subangular blocky structure; friable; few very fine roots; about 1 percent fine gravel; slightly acid; gradual smooth boundary.

2C—52 to 60 inches; mixed brown (7.5YR 4/4) and yellowish brown (10YR 5/4) sandy loam stratified with thin lenses of loamy sand; massive and single grain; very friable; about 2 percent fine gravel; slightly acid.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches
Thickness of the loess: 20 to 40 inches
Depth to carbonates: More than 40 inches
Depth to the base of the argillic horizon: 40 to 65 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

Bt horizon:
Hue—10YR or 7.5YR
Value—3 to 6
Chroma—3 to 6
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

2Bt horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—loam, silty clay loam, clay loam, sandy loam, sandy clay loam, or silt loam
Content of rock fragments—0 to 10 percent
Reaction—moderately acid to neutral

2C horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6

Chroma—3 to 6
Texture—stratified sandy loam, loam, or silt loam
Content of rock fragments—0 to 15 percent
Reaction—neutral or slightly alkaline

148B—Proctor silt loam, 2 to 5 percent slopes

Setting

Landform: Outwash plains
Position on the landform: Summits and shoulders

Map Unit Composition

Proctor and similar soils: 95 percent
Dissimilar soils: 5 percent

Soils of Minor Extent

Similar soils:
- Soils that are eroded
- Soils that have a sandy substratum

Dissimilar soils:
- The somewhat poorly drained Brenton and Millbrook soils on footslopes; in positions below those of the Proctor soil
- The poorly drained Drummer soils in swales

Properties and Qualities of the Proctor Soil

Parent material: Loess over stratified loamy outwash
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: Moderate
Ponding: None
Flooding: None
Potential for frost action: High
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Raub Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Argiudolls

Typical Pedon

Raub silt loam, 0 to 2 percent slopes, at an elevation of 680 feet above mean sea level; Champaign County, Illinois; 2,550 feet north and 1,690 feet east of the southwest

corner of sec. 19, T. 20 N., R. 14 W.; USGS Royal, Illinois, topographic quadrangle; lat. 40 degrees 10 minutes 40 seconds N. and long. 87 degrees 59 minutes 18 seconds W.; UTM Zone 16T, 0415853E 4448165N, NAD 83:

Ap—0 to 10 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate fine and very fine subangular blocky structure; friable; slightly acid; clear smooth boundary.

A—10 to 18 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; friable; slightly acid; clear smooth boundary.

Bt1—18 to 22 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; friable; few distinct very dark gray (10YR 3/1) organo-clay films lining pores; many distinct grayish brown (10YR 4/2) clay films on faces of peds; few fine distinct and prominent yellowish brown (10YR 5/6 and 5/8) masses of iron accumulation in the matrix; moderately acid; abrupt smooth boundary.

Bt2—22 to 32 inches; yellowish brown (10YR 5/4) silty clay loam; strong fine and medium angular blocky structure; firm; many distinct brown (10YR 4/3) clay films on faces of peds; few fine distinct dark grayish brown (10YR 4/2) iron depletions, few fine faint brown (10YR 5/3) masses of iron and manganese accumulation, and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine rounded prominent black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; slightly acid; clear smooth boundary.

2Bt3—32 to 40 inches; yellowish brown (10YR 5/4) clay loam; weak medium subangular blocky structure; firm; common distinct black (10YR 2/1) organo-clay films lining root channels; few coarse prominent light olive gray (5Y 6/2) iron depletions and many fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; many medium irregular prominent black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; 1 percent fine gravel; neutral; clear smooth boundary.

2BC—40 to 50 inches; yellowish brown (10YR 5/4) clay loam; weak medium and coarse subangular blocky structure; firm; many medium distinct gray (10YR 5/1) iron depletions and many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine irregular prominent black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; 1 percent fine gravel; slightly effervescent; slightly alkaline; clear smooth boundary.

2Cd—50 to 60 inches; yellowish brown (10YR 5/4) and gray (5Y 6/1) loam; massive; firm; common fine distinct and prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 5 percent fine gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches
Thickness of the loess: 22 to 40 inches
Depth to carbonates: 40 to 70 inches
Depth to the base of the argillic horizon: 40 to 70 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam
Content of rock fragments—0 to 1 percent
Reaction—moderately acid to neutral

Bt horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—3 to 6
Texture—silty clay loam or silt loam
Content of rock fragments—0 to 1 percent
Reaction—strongly acid to slightly acid

2Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—clay loam, silty clay loam, or loam
Content of rock fragments—1 to 10 percent
Reaction—slightly acid or neutral

2BC horizon (where present):
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—clay loam or loam
Content of rock fragments—1 to 10 percent
Reaction—neutral or slightly alkaline

2Cd horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—clay loam or loam
Content of rock fragments—3 to 10 percent
Reaction—slightly alkaline or moderately alkaline

481A—Raub silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Footslopes and summits

Map Unit Composition

Raub and similar soils: 94 percent
Dissimilar soils: 6 percent

Soils of Minor Extent

Similar soils:
- Soils that have a thin light-colored surface layer
- Soils that have a sandy substratum

Dissimilar soils:
- The moderately well drained Dana soils on gently sloping shoulders and backslopes
- The poorly drained Drummer soils in swales

Properties and Qualities of the Raub Soil

Parent material: Loess over till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: 40 to 70 inches to dense material
Available water capacity: About 9.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.5 to 5.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest perched seasonal high water table: 1 foot, January through May
Ponding: None
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Ross Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Cumulic Hapludolls

Typical Pedon

Ross silt loam, 0 to 2 percent slopes, frequently flooded, at an elevation of 590 feet above mean sea level; Tazewell County, Illinois; 1,490 feet west and 232 feet north of the southeast corner of sec. 28, T. 23 N., R. 3 W.; USGS Hopedale, Illinois, topographic quadrangle; lat. 40 degrees 24 minutes 38.7 seconds N. and long. 89 degrees 26 minutes 32.0 seconds W.; UTM Zone 16T, 0292777E 4476209N, NAD 83:

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, dark grayish brown (10YR 4/2) dry; weak fine granular structure; friable; common very fine roots; neutral; clear smooth boundary.
A—8 to 13 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure parting to weak fine granular; friable; common very fine and fine roots; common faint very dark gray (10YR 3/1) organic coatings on faces of peds; neutral; clear smooth boundary.
Bw1—13 to 27 inches; very dark grayish brown (10YR 3/2) loam, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure; friable; few very fine roots; few faint very dark gray (10YR 3/1) organic coatings on faces of peds; neutral; gradual smooth boundary.
Bw2—27 to 34 inches; dark brown (10YR 3/3) loam, brown (10YR 4/3) dry; weak fine and medium subangular blocky structure; friable; few very fine and coarse roots; common distinct very dark gray (10YR 3/1) and few faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; neutral; gradual smooth boundary.
Bw3—34 to 43 inches; brown (10YR 4/3) loam; weak medium subangular blocky structure; very friable; few very fine roots; many distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; neutral; gradual smooth boundary.
C1—43 to 54 inches; brown (10YR 4/3) sandy loam; massive; very friable; few very fine and fine roots; neutral; gradual smooth boundary.
C2—54 to 60 inches; brown (10YR 4/3) sandy loam; massive; very friable; few fine faint grayish brown (10YR 5/2) iron depletions in the matrix; 5 percent gravel; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 40 inches
Depth to the base of the cambic horizon: 24 to 45 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam
Content of rock fragments—0 to 6 percent
Reaction—slightly acid or neutral

Bw horizon:
Hue—10YR
Value—2 to 5
Chroma—1 to 4
Texture—loam or silt loam
Content of rock fragments—0 to 10 percent
Reaction—slightly acid to slightly alkaline

C horizon:
Hue—10YR, 7.5YR, or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—stratified sandy loam to silt loam
Content of rock fragments—0 to 15 percent
Reaction—slightly acid to moderately alkaline

3073A—Ross silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Ross and similar soils: 91 percent
Dissimilar soils: 9 percent

Soils of Minor Extent

Similar soils:
- Soils that have a silty subsoil
- Soils that have a surface layer of loam
- Soils that have a thin surface layer
- Soils that are subject to occasional flooding

Dissimilar soils:
- The poorly drained Sawmill soils on flood plains
- The somewhat poorly drained Brouillett soils in dips or swales
- Soils that are subject to rare flooding

Properties and Qualities of the Ross Soil

Parent material: Loamy alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate or moderately rapid

Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: Low
Depth and months of the highest apparent seasonal high water table: 4.0 feet, February through April
Ponding: None
Frequency and most likely period of flooding: Frequent, November through June
Potential for frost action: Moderate
Hazard of corrosion: Low for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w
Prime farmland category: Prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

Russell Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Russell silt loam, 5 to 10 percent slopes, eroded, at an elevation of 738 feet above mean sea level; Edgar County, Illinois; 115 feet north and 235 feet west of the center of sec. 18, T. 12 N., R. 13 W.; USGS Westfield East, Illinois, topographic quadrangle; lat. 39 degrees 29 minutes 23.5 seconds N. and long. 87 degrees 53 minutes 48.4 seconds W.; UTM Zone 16T, 0422885E 4371522N, NAD 83:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, light brownish gray (10YR 6/2) dry; mixed with few yellowish brown (10YR 5/4) pockets of subsoil material in the lower part; moderate very fine and fine granular structure; friable; many very fine roots; few fine rounded black (10YR 2/1) very weakly cemented iron-manganese oxide concretions throughout; slightly acid; abrupt smooth boundary.

Bt1—7 to 13 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; friable; common very fine roots; common distinct brown (10YR 5/3) clay films on faces of peds; few fine rounded black (10YR 2/1) very weakly cemented iron-manganese oxide concretions throughout; very strongly acid; clear smooth boundary.

Bt2—13 to 21 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine rounded black (10YR 2/1) very weakly cemented iron-manganese oxide concretions throughout; very strongly acid; clear smooth boundary.

Bt3—21 to 27 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; common distinct light yellowish brown (10YR 6/4) silt coatings on faces of peds; common distinct brown (7.5YR 4/4) clay films on faces of peds; few fine rounded black (10YR 2/1) very weakly cemented iron-manganese oxide concretions throughout; very strongly acid; clear smooth boundary.

2Bt4—27 to 36 inches; yellowish brown (10YR 5/4) clay loam; moderate medium and coarse subangular blocky structure; firm; few very fine roots; common distinct light

yellowish brown (10YR 6/4) silt coatings on faces of peds; few distinct brown (7.5YR 4/4) clay films on faces of peds; few fine rounded black (10YR 2/1) very weakly cemented iron-manganese oxide concretions throughout; 2 percent fine gravel; neutral; clear smooth boundary.

2Bt5—36 to 56 inches; strong brown (7.5YR 5/6) clay loam; weak coarse subangular blocky structure; firm; few very fine roots; few distinct brown (10YR 4/3) clay films on faces of peds; few distinct dark brown (10YR 3/3) organo-clay films lining root channels and pores; few prominent black (10YR 2/1) manganese oxide coatings on faces of peds; few fine and medium rounded black (10YR 2/1) very weakly cemented iron-manganese oxide concretions throughout; 5 percent fine gravel; neutral; gradual smooth boundary.

2Cd—56 to 72 inches; yellowish brown (10YR 5/4) loam; massive; firm; few fine rounded black (10YR 2/1) very weakly cemented iron-manganese oxide concretions throughout; 5 percent fine gravel; very slightly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 20 to 40 inches
Depth to carbonates: 40 to 60 inches
Depth to the base of the argillic horizon: 40 to 60 inches

Ap or A horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

E horizon (where present):
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

Bt horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam or silt loam
Content of rock fragments—0 to 10 percent
Reaction—very strongly acid to neutral

2Bt horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—clay loam, loam, or silty clay loam
Content of rock fragments—1 to 10 percent
Reaction—moderately acid to neutral

2Cd horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 or 5
Chroma—3 to 6

Texture—loam or clay loam
Content of rock fragments—1 to 14 percent
Reaction—neutral to moderately alkaline

322B—Russell silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits and shoulders

Map Unit Composition

Russell and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that have a dark surface layer
- Soils that have a sandy substratum
- Soils that are eroded

Dissimilar soils:
- The somewhat poorly drained Fincastle and Toronto soils on footslopes; in positions below those of the Russell soil
- The poorly drained Drummer soils in swales

Properties and Qualities of the Russell Soil

Parent material: Loess over till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: 40 to 60 inches to dense material
Available water capacity: About 9.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Ponding: None
Flooding: None
Potential for frost action: High
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

322C2—Russell silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines and end moraines
Position on the landform: Backslopes and shoulders

Map Unit Composition

Russell and similar soils: 92 percent
Dissimilar soils: 8 percent

Soils of Minor Extent

Similar soils:
- Soils that have a dark surface layer
- Soils that have a sandy substratum

Dissimilar soils:
- The somewhat poorly drained Fincastle and Toronto soils on footslopes; in positions below those of the Russell soil
- The poorly drained Drummer soils in swales

Properties and Qualities of the Russell Soil

Parent material: Loess over till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: 40 to 60 inches to dense material
Available water capacity: About 8.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Ponding: None
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3e
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

Sawmill Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls

Typical Pedon

Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded, at an elevation of 535 feet above mean sea level; Sangamon County, Illinois; 750 feet east and 300 feet south of the northwest corner of sec. 20, T. 15 N., R. 4 W.; USGS New City, Illinois, topographic quadrangle; lat. 39 degrees 44 minutes 34.2 seconds N. and long. 89 degrees 34 minutes 15.3 seconds W.; UTM Zone 16S, 0279712E 4402375N, NAD 83:

Ap—0 to 10 inches; very dark gray (10YR 3/1) and very dark grayish brown (10YR 3/2) silty clay loam, gray (10YR 5/1) dry; weak fine subangular blocky structure; firm; few fine roots; few subrounded pebbles 1 to 3 millimeters in diameter; slightly acid; clear smooth boundary.

A1—10 to 17 inches; black (10YR 2/1) and very dark grayish brown (10YR 3/2) silty clay loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure; firm; few fine roots; few subrounded pebbles 1 to 3 millimeters in diameter; few fine

faint rounded black (7.5YR 2.5/1) weakly cemented iron-manganese oxide concretions with diffuse boundaries lining root channels and pores; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

A2—17 to 25 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine and medium angular blocky structure; firm; few fine roots; few fine faint rounded black (7.5YR 2.5/1) weakly cemented iron-manganese oxide concretions with diffuse boundaries lining root channels and pores; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

AB—25 to 32 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; weak medium prismatic structure parting to moderate fine subangular blocky; firm; few fine roots; few fine faint rounded black (7.5YR 2.5/1) weakly cemented iron-manganese oxide concretions with diffuse boundaries lining root channels and pores; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

Bg—32 to 40 inches; dark gray (10YR 4/1) silty clay loam; weak medium prismatic structure parting to moderate fine and medium angular blocky; firm; few fine roots; common faint very dark gray (10YR 3/1) organic coatings on faces of peds; few fine faint rounded black (7.5YR 2.5/1) weakly cemented iron-manganese oxide concretions with diffuse boundaries lining root channels and pores; few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; slightly alkaline; clear smooth boundary.

Btg1—40 to 49 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure parting to weak medium angular blocky; firm; common distinct dark gray (10YR 4/1) clay films on faces of peds; few fine distinct rounded black (7.5YR 2.5/1) weakly cemented iron-manganese oxide concretions with diffuse boundaries lining root channels and pores; few fine prominent strong brown (7.5YR 5/6) masses of iron accumulation and common fine distinct yellowish brown (10YR 5/4) masses of iron and manganese accumulation in the matrix; slightly alkaline; clear smooth boundary.

Btg2—49 to 58 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure; firm; many thin gray (10YR 5/1) clay films on faces of peds; few fine prominent rounded black (7.5YR 2.5/1) weakly cemented iron-manganese oxide concretions with diffuse boundaries lining pores; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; slightly alkaline; clear smooth boundary.

Cg—58 to 65 inches; grayish brown (2.5Y 5/2) silty clay loam; massive; firm; very dark gray (10YR 3/1) channel linings and fillings; many medium prominent yellowish brown (10YR 5/6) masses of iron accumulation lining pores; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 36 inches
Depth to carbonates: More than 40 inches
Depth to the base of the cambic horizon: 36 to 60 inches

Ap, A, and AB horizons:
Hue—10YR, 2.5Y, 5Y, or N
Value—2 to 3
Chroma—0 to 2
Texture—silty clay loam
Content of rock fragments—0 to 2 percent
Reaction—slightly acid to slightly alkaline

Bg and Btg horizons:
Hue—10YR, 2.5Y, or 5Y
Value—3 to 6
Chroma—1 or 2
Texture—silty clay loam
Content of rock fragments—0 to 2 percent
Reaction—slightly acid to slightly alkaline

Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—3 to 6
Chroma—1 or 2
Texture—silty clay loam or clay loam; stratified with other textures in some pedons
Content of rock fragments—0 to 2 percent
Reaction—slightly acid to slightly alkaline

3107A—Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Sawmill and similar soils: 92 percent
Dissimilar soils: 8 percent

Soils of Minor Extent

Similar soils:
- Soils that have a loamy subsoil
- Soils that have a dark surface layer more than 36 inches thick
- Soils that are subject to occasional flooding
- Soils that have a light-colored surface layer

Dissimilar soils:
- The somewhat poorly drained Brouillett, Lawson, and Tice soils on slight rises; in positions above those of the Sawmill soil
- The well drained Landes, Ross, and Wirt soils on flood-plain steps; in positions above those of the Sawmill soil
- Soils that are subject to rare flooding

Properties and Qualities of the Sawmill Soil

Parent material: Silty alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4.5 to 7.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: At the surface, January through May
Frequency, duration, and most likely period of ponding: Frequent for brief periods from January through May

Frequency and most likely period of flooding: Frequent, November through June
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w
Prime farmland category: Prime farmland where drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil status: Hydric

Senachwine Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Senachwine silt loam, 35 to 60 percent slopes, at an elevation of 716 feet above mean sea level; De Witt County, Illinois; 1,056 feet east and 1,782 feet north of the southwest corner of sec. 26, T. 20 N., R. 3 E.; USGS De Witt, Illinois, topographic quadrangle; lat. 40 degrees 09 minutes 41.6 seconds N. and long. 88 degrees 50 minutes 10.4 seconds W.; UTM Zone 16T, 0343626E 4447306N, NAD 83:

A—0 to 5 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak fine subangular blocky structure; friable; few fine rock fragments; slightly acid; abrupt smooth boundary.

E—5 to 7 inches; brown (10YR 5/3) silt loam; weak medium platy structure; friable; few fine rock fragments; moderately acid; clear smooth boundary.

BEt—7 to 11 inches; yellowish brown (10YR 5/6) silt loam; moderate fine subangular blocky structure; friable; few faint dark brown (10YR 3/3) organo-clay films on faces of peds; few fine rock fragments; moderately acid; clear smooth boundary.

Bt1—11 to 21 inches; brown (10YR 4/3) clay loam; moderate medium subangular blocky structure; friable; many faint dark brown (10YR 3/3) clay films on faces of peds; few fine iron stains within peds; few fine and medium rock fragments; strongly acid; clear smooth boundary.

Bt2—21 to 30 inches; brown (10YR 4/3) clay loam; weak coarse prismatic structure parting to weak medium angular blocky; firm; common faint dark brown (10YR 3/3) clay films on faces of peds; few fine iron stains within peds; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rock fragments; strongly acid; clear smooth boundary.

Bt3—30 to 38 inches; dark yellowish brown (10YR 4/4) clay loam; weak coarse prismatic structure; firm; few faint dark brown (10YR 3/3) clay films on faces of peds; few fine stains of iron within peds; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and few medium rock fragments; neutral; clear smooth boundary.

BC—38 to 49 inches; dark yellowish brown (10YR 4/4) loam; weak coarse prismatic structure; firm; few fine stains of iron within peds; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and few medium rock fragments; slightly effervescent; slightly alkaline; clear smooth boundary.

C—49 to 60 inches; brown (10YR 5/3) loam; massive; firm; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine and few medium rock fragments; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the loess: 0 to 18 inches
Depth to carbonates: 20 to 40 inches
Depth to the base of the argillic horizon: 24 to 40 inches

A or Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 4
Texture—silt loam; clay loam in pedons in severely eroded areas
Content of rock fragments—0 to 3 percent
Reaction—moderately acid to neutral

E horizon (where present):
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—0 to 3 percent
Reaction—moderately acid to neutral

Bt or 2Bt horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam, clay loam, or loam
Content of rock fragments—1 to 10 percent
Reaction—strongly acid to neutral

BC or 2BC horizon (where present):
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam, clay loam, or loam
Content of rock fragments—1 to 10 percent
Reaction—neutral or slightly alkaline

C or 2C horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—5 or 6
Chroma—3 or 4
Texture—clay loam or loam
Content of rock fragments—1 to 10 percent
Reaction—slightly alkaline or moderately alkaline

618C2—Senachwine silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines and end moraines
Position on the landform: Backslopes

Map Unit Composition

Senachwine and similar soils: 95 percent
Dissimilar soils: 5 percent

Soils of Minor Extent

Similar soils:
- Soils that have a sandy substratum
- Soils that are severely eroded and have a surface layer of clay loam
- Soils that have a grayish subsoil at a moderate depth
- Soils that are shallow to lime

Dissimilar soils:
- The somewhat poorly drained Fincastle and Toronto soils on footslopes; in positions below those of the Senachwine soil
- The poorly drained Drummer soils in swales

Properties and Qualities of the Senachwine Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Ponding: None
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3e
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

618C3—Senachwine clay loam, 5 to 10 percent slopes, severely eroded

Setting

Landform: End moraines and ground moraines
Position on the landform: Backslopes

Map Unit Composition

Senachwine and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that have a sandy substratum
- Soils that are less eroded and have a surface layer of silt loam
- Soils that have a grayish subsoil at a moderate depth

Dissimilar soils:
- The somewhat poorly drained Fincastle and Toronto soils on footslopes; in positions below those of the Senachwine soil
- The poorly drained Drummer soils in swales

Properties and Qualities of the Senachwine Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.3 to 1.0 percent
Shrink-swell potential: Moderate
Ponding: None
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3e
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

618D2—Senachwine silt loam, 10 to 18 percent slopes, eroded

Setting

Landform: End moraines and ground moraines
Position on the landform: Backslopes

Map Unit Composition

Senachwine and similar soils: 95 percent
Dissimilar soils: 5 percent

Soils of Minor Extent

Similar soils:
- Soils that have a sandy substratum
- Soils that are severely eroded and have a surface layer of clay loam
- Soils that have a grayish subsoil at a moderate depth

Dissimilar soils:
- The somewhat poorly drained Fincastle and Toronto soils on footslopes; in positions below those of the Senachwine soil
- The poorly drained Drummer soils in swales
- The poorly drained Sawmill soils on flood plains

Properties and Qualities of the Senachwine Soil

Parent material: Till
Drainage class: Well drained

Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.7 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Ponding: None
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

618D3—Senachwine clay loam, 10 to 18 percent slopes, severely eroded

Setting

Landform: End moraines and ground moraines
Position on the landform: Backslopes

Map Unit Composition

Senachwine and similar soils: 95 percent
Dissimilar soils: 5 percent

Soils of Minor Extent

Similar soils:
- Soils that have a sandy substratum
- Soils that are less eroded and have a surface layer of silt loam
- Soils that have a grayish subsoil at a moderate depth

Dissimilar soils:
- The somewhat poorly drained Fincastle and Toronto soils on footslopes; in positions below those of the Senachwine soil
- The poorly drained Drummer soils in swales

Properties and Qualities of the Senachwine Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 0.3 to 1.0 percent
Shrink-swell potential: Moderate
Ponding: None
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.

Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

618F—Senachwine silt loam, 18 to 35 percent slopes

Setting

Landform: End moraines and ground moraines
Position on the landform: Backslopes

Map Unit Composition

Senachwine and similar soils: 90 percent
Dissimilar components: 10 percent

Components of Minor Extent

Similar soils:
- Soils that have a sandy substratum
- Soils that are eroded
- Soils that have a grayish subsoil at a moderate depth
- Soils that have steep slopes

Dissimilar components:
- Soils that have very steep slopes
- Soils that are underlain by bedrock at a shallow depth
- Escarpments
- Areas of rock outcrop
- The poorly drained Sawmill soils on flood plains

Properties and Qualities of the Senachwine Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.5 percent
Shrink-swell potential: Moderate
Ponding: None
Flooding: None
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 6e
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

618G—Senachwine silt loam, 35 to 60 percent slopes

Setting

Landform: End moraines and ground moraines
Position on the landform: Backslopes

Map Unit Composition

Senachwine and similar soils: 92 percent
Dissimilar components: 8 percent

Components of Minor Extent

Similar soils:
- Soils that have a sandy substratum
- Soils that are eroded
- Soils that have a grayish subsoil at a moderate depth
- Soils that are less sloping

Dissimilar components:
- Soils that are underlain by bedrock at a shallow depth
- Escarpments
- Areas of rock outcrop
- The poorly drained Sawmill soils on flood plains

Properties and Qualities of the Senachwine Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.1 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.5 percent
Shrink-swell potential: Moderate
Ponding: None
Flooding: None
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 7e
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

Shiloh Series

Taxonomic classification: Fine, smectitic, mesic Cumulic Vertic Endoaquolls

Typical Pedon

Shiloh silty clay loam, 0 to 2 percent slopes, in a slight depression at an elevation of 619 feet above mean sea level; Effingham County, Illinois; 1,580 feet north and 50 feet east of the southwest corner of sec. 11, T. 8 N., R. 4 E.; USGS Shumway, Illinois, topographic quadrangle; lat. 39 degrees 09 minutes 06.4 seconds N. and long. 88 degrees 43 minutes 43.5 seconds W.; UTM Zone 16S, 0350621E 4335042N, NAD 83:

Ap—0 to 7 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; weak medium granular and angular blocky structure; firm; common very fine and few fine roots throughout; common very fine tubular pores; slightly acid; abrupt smooth boundary.

A—7 to 19 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate very fine angular blocky structure; firm; common very fine and few fine roots throughout; common very fine tubular pores; slightly acid; gradual smooth boundary.

BA—19 to 35 inches; black (10YR 2/1) silty clay, dark gray (10YR 4/1) dry; strong fine angular blocky structure; very firm; common very fine and few fine roots throughout; common very fine tubular pores; many distinct black (N 2.5/) pressure faces on faces of peds; slightly acid; gradual smooth boundary.

Bg1—35 to 48 inches; very dark gray (N 3/) silty clay, gray (N 5/) dry; strong fine angular blocky structure; very firm; common very fine roots throughout; common very fine tubular pores; common prominent black (10YR 2/1) pressure faces on faces of peds; few fine prominent light olive brown (2.5Y 5/6) masses of iron accumulation on faces of peds and in the matrix; slightly acid; clear smooth boundary.

Bg2—48 to 60 inches; dark gray (5Y 4/1) silty clay loam; weak and moderate medium subangular blocky structure; very firm; common very fine roots throughout; common very fine tubular pores; common fine prominent light olive brown (2.5Y 5/6) and few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation on faces of peds and in the matrix; common medium prominent black (10YR 2/1) masses of manganese accumulation in the matrix; slightly acid; clear smooth boundary.

Bg3—60 to 68 inches; gray (10YR 6/1) silty clay loam; weak medium subangular blocky structure; firm; common very fine roots throughout; common very fine tubular pores; few faint patchy dark gray (2.5Y 4/1) clay films on faces of peds and common distinct dark gray (2.5Y 4/1) clay films on surfaces lining root channels and pores; few fine and medium prominent yellowish brown (10YR 5/6) masses of iron accumulation on faces of peds and in the matrix; slightly acid; abrupt smooth boundary.

2Ab—68 to 79 inches; very dark gray (2.5Y 3/1) silty clay loam; weak coarse subangular blocky structure; firm; few very fine roots throughout; common very fine tubular pores; common distinct very dark gray (2.5Y 3/1) organo-clay films on surfaces lining root channels and pores; about 2 percent fine subangular rock fragments; slightly acid; clear smooth boundary.

2Btgb—79 to 86 inches; gray (10YR 6/1) clay; moderate medium prismatic structure parting to moderate medium angular blocky; very firm; common very fine tubular pores; common distinct very dark gray (2.5Y 3/1) organo-clay films on faces of peds and many distinct very dark gray (2.5Y 3/1) organo-clay films on surfaces lining root channels and pores; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation on faces of peds and in the matrix; about 2 percent fine subangular rock fragments; slightly acid.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 48 inches
Thickness of the loess or colluvial sediment: More than 60 inches
Depth to carbonates: More than 39 inches
Depth to the base of the cambic horizon: More than 40 inches

Ap and A horizons:
Hue—10YR, 2.5Y, 5Y, or N
Value—2 or 3
Chroma—0 to 2
Texture—silty clay loam
Content of rock fragments—none
Reaction—slightly acid or neutral

BA and Bg horizons:
Hue—10YR, 2.5Y, 5Y, or N
Value—2 to 6
Chroma—0 to 2
Texture—silty clay or silty clay loam
Content of rock fragments—none
Reaction—slightly acid or neutral

BC or C horizon (where present):
Hue—10YR, 2.5Y, 5Y, or N
Value—3 to 6
Chroma—0 to 2
Texture—silty clay loam, silty clay, or silt loam
Content of rock fragments—none
Reaction—slightly acid to slightly alkaline

2Ab or 2Btgb horizon (where present):
Hue—10YR, 2.5Y, 5Y, or N
Value—2 to 4 in the 2Ab horizon; 4 to 6 in the 2Btgb horizon
Chroma—0 to 3 in the 2Ab horizon; 0 to 2 in the 2Btgb horizon
Texture—clay loam, clay, silty clay, or silty clay loam
Content of rock fragments—0 to 10 percent
Reaction—slightly acid to slightly alkaline in the 2Ab horizon; slightly acid or neutral in the 2Btgb horizon

138A—Shiloh silty clay loam, 0 to 2 percent slopes

Setting

Landform: Depressions on till plains

Map Unit Composition

Shiloh and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that have less clay in the subsoil
- Soils that have a thin surface layer
- Soils that have a sandy substratum

Dissimilar soils:
- The somewhat poorly drained Bluford and Hoyleton soils on slight rises

Properties and Qualities of the Shiloh Soil

Parent material: Loess or silty and clayey sediments over paleo accretionary deposits or till
Drainage class: Very poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.0 inches to a depth of 60 inches
Content of organic matter in the surface layer: 3.0 to 5.0 percent
Shrink-swell potential: High
Depth and months of the highest apparent seasonal high water table: At the surface, January through June
Frequency, duration, and most likely period of ponding: Frequent for brief periods from January through June
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Moderate

Interpretive Groups

Land capability classification: 3w
Prime farmland category: Prime farmland where drained
Hydric soil status: Hydric

Shoals Series

Taxonomic classification: Fine-loamy, mixed, superactive, nonacid, mesic Fluventic Endoaquepts

Typical Pedon

Shoals silt loam, 0 to 2 percent slopes, frequently flooded, at an elevation of 567 feet above mean sea level; Edgar County, Illinois; 600 feet north and 250 feet east of the southwest corner of sec. 10, T. 12 N., R. 11 W.; USGS Marshall, Illinois, topographic quadrangle; lat. 39 degrees 29 minutes 34.1 seconds N. and long. 87 degrees 37 minutes 42.0 seconds W.; UTM Zone 16S, 0445971E 4371656N, NAD 83:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; moderate fine granular structure; friable; many very fine roots; neutral; clear smooth boundary.

Bw—8 to 17 inches; brown (10YR 4/3) silt loam; weak coarse subangular blocky structure parting to moderate thin and medium platy; friable; common very fine roots; many medium faint grayish brown (10YR 5/2) iron depletions in the matrix; common fine irregular and rounded black (10YR 2/1) weakly cemented manganese oxide nodules throughout; neutral; gradual wavy boundary.

Bg—17 to 37 inches; grayish brown (10YR 5/2) silt loam; weak coarse prismatic structure; friable; few very fine roots; few faint brown (10YR 4/3) organic coatings lining root channels and pores; many fine prominent strong brown (7.5YR 4/6) masses of iron accumulation and few fine faint brown (10YR 5/3) masses of iron and manganese accumulation in the matrix; few fine irregular and rounded black (10YR 2/1) weakly cemented manganese oxide nodules throughout; neutral; gradual wavy boundary.

Cg—37 to 60 inches; gray (10YR 6/1) loam; massive; friable; few very fine roots; common medium distinct brown (10YR 5/3) masses of iron and manganese accumulation and few medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common fine irregular and rounded black (10YR 2/1) weakly cemented manganese oxide nodules throughout; neutral.

Range in Characteristics

Depth to carbonates: More than 20 inches
Depth to the base of the cambic horizon: 20 to 60 inches

Ap or A horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam
Content of rock fragments—0 to 3 percent
Reaction—neutral

Bw and Bg horizons:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—loam or silt loam
Content of rock fragments—0 to 3 percent
Reaction—neutral or slightly alkaline

Cg horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 to 6
Texture—commonly stratified with loam, silt loam, sandy loam, fine sandy loam, or clay loam
Content of rock fragments—0 to 14 percent
Reaction—neutral or slightly alkaline

3424A—Shoals silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Shoals and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that are subject to occasional flooding
- Soils that have a dark surface layer
- Soils that have a silty subsoil

Dissimilar soils:
- Soils that are subject to rare flooding
- The well drained Landes, Ross, and Wirt soils on flood-plain steps; in positions above those of the Shoals soil

Properties and Qualities of the Shoals Soil

Parent material: Loamy alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.5 percent
Shrink-swell potential: Low
Depth and months of the highest apparent seasonal high water table: 0.5 foot, January through May
Ponding: None
Frequency and most likely period of flooding: Frequent, November through June
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w
Prime farmland category: Prime farmland where drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

Somonauk Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon

Somonauk silt loam, 2 to 5 percent slopes, eroded, at an elevation of 699 feet above mean sea level; Coles County, Illinois; about 4 miles northeast of Charleston; 838 feet east and 1,347 feet south of the northwest corner of sec. 33, T. 13 N., R. 10 E.; USGS Ashmore, Illinois, topographic quadrangle; lat. 39 degrees 31 minutes 54.9 seconds N. and long. 88 degrees 05 minutes 55.3 seconds W.; UTM Zone 16S, 0405572E 4376386N, NAD 83:

Ap—0 to 6 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak coarse subangular blocky structure parting to weak fine granular; firm; few very fine roots; neutral; abrupt smooth boundary.

Bt1—6 to 16 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine prismatic structure parting to moderate fine angular blocky; firm; few very fine roots; common faint brown (10YR 4/3) clay films on faces of peds; neutral; clear smooth boundary.

Bt2—16 to 21 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium prismatic structure parting to moderate fine angular blocky; firm; few very fine roots; common distinct brown (10YR 4/3) clay films on faces of peds; few medium faint brown (10YR 5/3) iron depletions and few medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine black (10YR 2/1) masses of manganese accumulation along faces of peds; strongly acid; clear smooth boundary.

Bt3—21 to 33 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate coarse prismatic structure; firm; few very fine and fine roots; common distinct brown (10YR 4/3) clay films on faces of peds; common fine distinct light brownish

gray (10YR 6/2) and common medium distinct pale brown (10YR 6/3) iron depletions in the matrix; common fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine black (10YR 2/1) masses of manganese accumulation along faces of peds; strongly acid; abrupt smooth boundary.

2Bt4—33 to 40 inches; yellowish brown (10YR 5/4) clay loam; moderate coarse prismatic structure; firm; very few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; few coarse prominent yellowish red (5YR 4/6) masses of iron and manganese accumulation and iron and manganese nodules in the matrix; common medium black (10YR 2/1) masses of manganese accumulation in the matrix; 1 percent gravel; moderately acid; clear smooth boundary.

2Bt5—40 to 55 inches; brown (10YR 5/3) sandy clay loam; moderate coarse prismatic structure; firm; very few very fine roots; many prominent light brownish gray (10YR 6/2) clay depletions along faces of peds; many medium faint grayish brown (10YR 5/2) iron depletions and many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium black (10YR 2/1) masses of manganese accumulation along faces of peds; 1 percent gravel; moderately acid; clear smooth boundary.

2BCt—55 to 68 inches; dark yellowish brown (10YR 4/4) sandy loam; moderate very coarse prismatic structure; friable; common distinct dark yellowish brown (10YR 3/4) clay films lining pores and bridging sand grains; few coarse distinct gray (10YR 6/1) and many medium faint brown (10YR 4/3 and 5/3) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine black (10YR 2/1) masses of manganese accumulation in the matrix; 1 percent gravel; neutral; clear smooth boundary.

2Cg—68 to 80 inches; greenish gray (10Y 6/1), stratified loam and sandy loam; weak very coarse prismatic structure; friable; few distinct dark yellowish brown (10YR 3/4) clay films lining pores; many coarse prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine black (7.5YR 2.5/1) masses of manganese accumulation in the matrix; 1 percent gravel; slightly alkaline.

Range in Characteristics

Thickness of the loess: 20 to 40 inches
Depth to carbonates: More than 40 inches
Depth to the base of the argillic horizon: 30 to 70 inches

A or Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—2 or 3
Texture—silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

E horizon (where present):
Hue—10YR
Value—3 to 5
Chroma—2 or 3
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

Bt horizon:
Hue—7.5YR or 10YR

Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam
Content of rock fragments—none
Reaction—strongly acid to neutral

2Bt and 2BC horizons:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—clay loam, loam, sandy loam, or sandy clay loam
Content of rock fragments—0 to 10 percent
Reaction—strongly acid to neutral

2C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—commonly stratified sandy loam or loam with thin strata of other textures
Content of rock fragments—0 to 15 percent
Reaction—neutral to moderately alkaline

668B2—Somonauk silt loam, 2 to 5 percent slopes, eroded

Setting

Landform: Outwash plains and stream terraces
Position on the landform: Shoulders and summits

Map Unit Composition

Somonauk and similar soils: 93 percent
Dissimilar soils: 7 percent

Soils of Minor Extent

Similar soils:
- Soils that have a loamy subsoil
- Soils that are not eroded
- Soils that are less gray in the lower part of the subsoil

Dissimilar soils:
- The somewhat poorly drained Starks soils on footslopes; in positions below those of the Somonauk soil
- The poorly drained Drummer soils in swales

Properties and Qualities of the Somonauk Soil

Parent material: Loess over stratified loamy outwash
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.2 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 2 feet, February through April

Ponding: None
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Starks Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs
Taxadjunct features: The Starks soils in this survey area are less gray in the upper part of the subsoil than is defined as the range for the series. This difference, however, does not significantly affect the use and management of the soils. These soils are classified as fine-silty, mixed, superactive, mesic Aquic Hapludalfs.

Typical Pedon

Starks silt loam, 0 to 2 percent slopes, at an elevation of 656 feet above mean sea level; Coles County, Illinois; about 1 1/2 miles west of Etna; 600 feet east and 1,300 feet north of the southwest corner of sec. 17, T. 11 N., R. 11 N.; USGS Mattoon West, Illinois, topographic quadrangle; lat. 39 degrees 23 minutes 30.0 seconds N. and long. 88 degrees 27 minutes 03.5 seconds W.; UTM Zone 16S, 0375046E 4361249N, NAD 83:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate very fine granular structure; friable; slightly acid; abrupt smooth boundary.

E—8 to 13 inches; brown (10YR 5/3) silt loam; moderate thin platy structure parting to moderate very fine granular; friable; common distinct light brownish gray (10YR 6/2) and light gray (10YR 7/2) (dry) silt coatings on faces of peds; few fine faint dark yellowish brown (10YR 4/4) masses of iron and manganese accumulation in the matrix; moderately acid; clear smooth boundary.

Bt1—13 to 21 inches; yellowish brown (10YR 5/4) silty clay loam; weak fine prismatic structure parting to moderate fine and medium subangular blocky; firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common distinct light gray (10YR 7/2) (dry) silt coatings on faces of peds; common fine prominent yellowish brown (10YR 5/8) masses of iron accumulation and few fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; few fine rounded dark masses of iron-manganese oxide accumulation in the matrix; moderately acid; clear smooth boundary.

Bt2—21 to 26 inches; brown (10YR 5/3) silty clay loam; moderate fine subangular blocky structure; firm; common distinct grayish brown (10YR 5/2) clay films on faces of peds; common distinct gray (10YR 6/1) silt coatings on faces of peds; many fine prominent yellowish brown (10YR 5/8) masses of iron accumulation and common fine faint light brownish gray (10YR 6/2) iron depletions in the matrix; few fine rounded dark masses of iron-manganese oxide accumulation in the matrix; moderately acid; clear smooth boundary.

Btg1—26 to 36 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; firm; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; very few distinct gray (10YR 6/1) silt coatings on faces of peds; many medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine rounded dark masses of iron-manganese oxide accumulation in the matrix; moderately acid; clear smooth boundary.

2Btg2—36 to 44 inches; grayish brown (10YR 5/2) sandy loam; moderate coarse subangular blocky structure; firm; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct brown (7.5YR 4/4) masses of iron and manganese accumulation in the matrix; few fine rounded dark masses of iron-manganese oxide accumulation in the matrix; 3 percent gravel; moderately acid; clear smooth boundary.

2C—44 to 60 inches; dark yellowish brown (10YR 4/4) sandy loam; massive; firm; common fine rounded dark masses of iron-manganese oxide accumulation in the matrix; neutral.

Range in Characteristics

Thickness of the loess: 24 to 40 inches
Depth to carbonates: 40 to 70 inches
Depth to the base of the argillic horizon: More than 35 inches

Ap or A horizon:
Hue—10YR
Value—4 or 5
Chroma—1 to 3
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

E horizon (where present):
Hue—10YR
Value—5 or 6
Chroma—2 or 3
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

Bt or Bg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—very strongly acid to slightly acid

2Bt, 2Btg, 2BC, or 2BCg horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—clay loam, loam, or sandy loam
Content of rock fragments—0 to 5 percent
Reaction—strongly acid to slightly alkaline

2C or 2Cg horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6

Chroma—1 to 6
Texture—stratified sandy loam, loam, silt loam, and sandy clay loam
Content of rock fragments—0 to 15 percent
Reaction—strongly acid to slightly alkaline

132A—Starks silt loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces and outwash plains
Position on the landform: Summits and footslopes

Map Unit Composition

Starks and similar soils: 95 percent
Dissimilar soils: 5 percent

Soils of Minor Extent

Similar soils:
- Soils that are subject to very rare flooding
- Soils that have a dark surface layer
- Soils that are gently sloping
- Soils that have a loamy subsoil

Dissimilar soils:
- The moderately well drained Somonauk soils in gently sloping areas; in positions below those of the Starks soil
- The poorly drained Drummer soils in swales
- The poorly drained Brooklyn soils in depressions

Properties and Qualities of the Starks Soil

Parent material: Loess over stratified loamy outwash
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.5 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 1 foot, January through May
Ponding: None
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

7132A—Starks silt loam, 0 to 2 percent slopes, rarely flooded

Setting

Landform: Stream terraces
Position on the landform: Summits

Map Unit Composition

Starks and similar soils: 95 percent
Dissimilar soils: 5 percent

Soils of Minor Extent

Similar soils:
- Soils that are subject to occasional flooding; on flood plains
- Soils that have sand and gravel in the substratum

Dissimilar soils:
- Soils that are not subject to flooding
- The well drained Camden soils on gently sloping rises; in positions above those of the Starks soil
- The well drained Wirt and poorly drained Sawmill soils on flood plains

Properties and Qualities of the Starks Soil

Parent material: Loess over stratified sandy outwash
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 1 foot, January through May
Ponding: None
Frequency and most likely period of flooding: Rare, November through June
Potential for frost action: High
Hazard of corrosion: High for steel and concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 1
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Thorp Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Argiaquic Argialbolls

Typical Pedon

Thorp silt loam, 0 to 2 percent slopes, at an elevation of 640 feet above mean sea level; La Salle County, Illinois; about 9 miles east of Baker; 990 feet north and 2,240 feet west of the southeast corner of sec. 27, T. 36 N., R. 5 E.; USGS Sheridan, Illinois,

topographic quadrangle; lat. 41 degrees 33 minutes 40.4 seconds N. and long. 88 degrees 38 minutes 46.5 seconds W.; UTM Zone 16T, 0362722E 4602372N, NAD 83:

Ap—0 to 7 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate very fine granular structure; friable; neutral; abrupt smooth boundary.

A—7 to 14 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine granular structure; friable; slightly acid; abrupt smooth boundary.

Eg—14 to 19 inches; dark gray (10YR 4/1) silt loam, gray (10YR 6/1) dry; weak fine granular structure; friable; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

Btg1—19 to 21 inches; dark gray (10YR 4/1) and dark grayish brown (2.5Y 4/2) silty clay loam; weak fine prismatic structure parting to moderate fine subangular blocky; firm; many distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; few fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

Btg2—21 to 33 inches; gray (5Y 5/1) and olive gray (5Y 4/2) silty clay loam; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; firm; many prominent very dark gray (10YR 3/1) organo-clay films on faces of peds; many fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

Btg3—33 to 43 inches; grayish brown (2.5Y 5/2) silty clay loam; weak fine prismatic structure parting to moderate fine angular and subangular blocky; firm; many distinct very dark gray (10YR 3/1) organo-clay films and dark gray (N 4/) clay films on faces of peds; common fine prominent yellowish brown (10YR 5/6) and distinct light yellowish brown (2.5Y 6/4) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.

2Btg4—43 to 50 inches; grayish brown (10YR 5/2) and yellowish brown (10YR 5/6) sandy clay loam; weak coarse subangular blocky structure; friable; few distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds; neutral; clear smooth boundary.

2Cg—50 to 65 inches; mixed grayish brown (10YR 5/2) and yellowish brown (10YR 5/8) sandy loam with thin strata of sand; massive; friable in the sandy loam and loose in the sand; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 14 inches
Thickness of the loess: 30 to 54 inches
Depth to carbonates: More than 40 inches
Depth to the base of the argillic horizon: 40 to 65 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid to slightly alkaline

Eg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 or 2
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

Btg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

2Btg horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 8
Texture—sandy clay loam, sandy loam, clay loam, loam, silt loam, or silty clay loam
Content of rock fragments—0 to 10 percent
Reaction—moderately acid to slightly alkaline

2Cg horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 8
Texture—stratified sand, loamy sand, sandy loam, sandy clay loam, clay loam, loam, silt loam, and silty clay loam
Content of rock fragments—0 to 15 percent
Reaction—slightly acid to moderately alkaline

206A—Thorp silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains and ground moraines
Position on the landform: Toeslopes

Map Unit Composition

Thorp and similar soils: 95 percent
Dissimilar soils: 5 percent

Soils of Minor Extent

Similar soils:
- Soils that have a light-colored surface layer
- Soils that have a surface layer of silty clay loam
- Soils that have a clayey subsoil

Dissimilar soils:
- The somewhat poorly drained Millbrook soils on slight rises; in positions above those of the Thorp soil

Properties and Qualities of the Thorp Soil

Parent material: Loess over stratified loamy outwash
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 4.0 to 6.0 percent
Shrink-swell potential: Moderate

Depth and months of the highest apparent seasonal high water table: At the surface, January through May
Frequency, duration, and most likely period of ponding: Frequent for brief periods from January through May
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland category: Prime farmland where drained
Hydric soil status: Hydric

Tice Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls

Typical Pedon

Tice silty clay loam, 0 to 2 percent slopes, frequently flooded, at an elevation of about 575 feet above mean sea level; Macon County, Illinois; about 325 feet south and 960 feet east of the center of sec. 22, T. 16 N., R. 1 W.; USGS Niantic, Illinois, topographic quadrangle; lat. 39 degrees 49 minutes 18 seconds N. and long. 89 degrees 11 minutes 09 seconds W.; UTM Zone 16S, 0312918E 4410255N, NAD 83:

Ap—0 to 6 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine granular and moderate medium angular blocky structure; friable; slightly acid; abrupt smooth boundary.
A—6 to 21 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; moderate fine subangular blocky structure; friable; neutral; clear smooth boundary.
Bt1—21 to 34 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; many faint dark grayish brown (10YR 4/2) clay films on faces of peds; few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; neutral; clear smooth boundary.
Bt2—34 to 46 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine and medium prismatic structure parting to moderate medium subangular blocky; firm; many distinct dark gray (10YR 4/1) clay films on faces of peds; many fine prominent strong brown (7.5YR 5/8 and 4/6) masses of iron and manganese accumulation in the matrix; neutral; clear smooth boundary.
Bt3—46 to 58 inches; dark grayish brown (10YR 4/2) silty clay loam; weak medium prismatic structure; firm; common distinct dark gray (10YR 4/1) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine faint rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; neutral; clear smooth boundary.
Btg—58 to 66 inches; grayish brown (10YR 5/2) silty clay loam; weak coarse prismatic structure; firm; few faint gray (10YR 5/1) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine distinct rounded black (7.5YR 2.5/1) very weakly cemented iron-manganese oxide nodules throughout; neutral; gradual wavy boundary.

BCg—66 to 80 inches; 70 percent grayish brown (2.5Y 5/2) and 30 percent light olive brown (2.5Y 5/3) silt loam; massive; very friable; few distinct dark grayish brown (10YR 4/2) clay films lining pores; common fine tubular pores; many medium faint light brownish gray (10YR 6/2) iron depletions, many medium prominent yellowish brown (10YR 5/8) iron accumulations, and few medium distinct black (2.5Y 2.5/1) iron-manganese oxide accumulations in the matrix; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches
Depth to carbonates: More than 60 inches
Depth to the base of the cambic horizon: More than 30 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silty clay loam
Content of rock fragments—none
Reaction—slightly acid or neutral

Bt, Btg, Bw, or Bg horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 4
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

BC or BCg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 or 5
Chroma—1 to 4
Texture—silty clay loam or silt loam; thin strata of loam, clay loam, or sandy loam in some pedons
Content of rock fragments—none
Reaction—moderately acid to neutral

C or Cg horizon (where present):
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 3
Texture—stratified silty clay loam, clay loam, loam, sandy loam, or silt loam
Content of rock fragments—none
Reaction—moderately acid to slightly alkaline

3284A—Tice silty clay loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Tice and similar soils: 87 percent
Dissimilar soils: 13 percent

Soils of Minor Extent

Similar soils:
- Soils that are subject to occasional flooding
- Soils that have a light-colored surface layer
- Soils that have a very thick and dark surface layer
- Soils that have a loamy subsoil

Dissimilar soils:
- Soils that are subject to rare flooding
- The well drained Landes, Ross, and Wirt soils on flood-plain steps; in positions above those of the Tice soil
- The poorly drained Sawmill soils in swales and backswamps; in positions below those of the Tice soil

Properties and Qualities of the Tice Soil

Parent material: Silty alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.4 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 1 foot, January through May
Ponding: None
Frequency and most likely period of flooding: Frequent, November through June
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w
Prime farmland category: Prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

Toronto Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Udollic Epiaqualfs

Typical Pedon

Toronto silt loam, 0 to 2 percent slopes, at an elevation of 682 feet above mean sea level; Edgar County, Illinois; 525 feet south and 2,050 feet east of the northwest corner of sec. 25, T. 14 N., R. 12 W.; USGS Paris North, Illinois, topographic quadrangle; lat. 39 degrees 38 minutes 44.73 seconds N. and long. 87 degrees 41 minutes 48.98 seconds W.; UTM Zone 16S, 0440200E 4388677N, NAD 83:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; common very fine roots; common fine rounded black (10YR 2/1) weakly cemented iron-manganese oxide nodules throughout; slightly acid; abrupt smooth boundary.

E—9 to 12 inches; brown (10YR 5/3) silt loam; moderate thin and medium platy structure; friable; common very fine roots; common fine faint grayish brown (10YR 5/2) iron depletions in the matrix; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine rounded black (10YR 2/1) weakly cemented iron-manganese oxide nodules throughout; strongly acid; abrupt smooth boundary.

Btg1—12 to 16 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure parting to moderate fine angular blocky; firm; common very fine roots; many faint brown (10YR 5/3) clay films on faces of peds; common fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) weakly cemented iron-manganese oxide nodules throughout; strongly acid; clear smooth boundary.

Btg2—16 to 26 inches; light brownish gray (10YR 6/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; common very fine roots; many distinct brown (10YR 5/3) clay films on faces of peds; few distinct dark gray (10YR 4/1) clay films lining root channels and pores; many faint light brownish gray (2.5Y 6/2) silt coatings on faces of peds; common medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) weakly cemented iron-manganese oxide nodules throughout; strongly acid; gradual wavy boundary.

2Btg3—26 to 33 inches; light brownish gray (10YR 6/2) clay loam; moderate coarse prismatic structure; firm; common very fine roots; few distinct dark gray (10YR 4/1) clay films on faces of peds; few distinct very dark grayish brown (10YR 3/2) organo-clay films in root channels and pores; many medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) weakly cemented iron-manganese oxide nodules throughout; about 1 percent fine gravel; slightly acid; gradual wavy boundary.

2Bt—33 to 44 inches; yellowish brown (10YR 5/4) clay loam; weak coarse prismatic structure; firm; few very fine roots; few distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds and in pores; few fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine and medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) weakly cemented iron-manganese oxide nodules throughout; about 1 percent fine gravel; neutral; gradual wavy boundary.

2BC—44 to 54 inches; yellowish brown (10YR 5/4) loam; weak coarse prismatic structure; firm; few distinct very dark grayish brown (10YR 3/2) organo-clay films in root channels and pores; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine and medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) weakly cemented iron-manganese oxide nodules throughout; about 10 percent fine gravel; neutral; clear wavy boundary.

2C—54 to 60 inches; yellowish brown (10YR 5/4) loam; massive; firm; few fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine rounded black (10YR 2/1) weakly cemented iron-manganese oxide nodules throughout; about 10 percent fine gravel; slightly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the loess: 22 to 40 inches
Depth to carbonates: 35 to 60 inches
Depth to the base of the argillic horizon: 40 to 60 inches

Ap or A horizon:
Hue—10YR

Value—2 or 3
Chroma—1 or 2
Texture—silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

E horizon (where present):
Hue—10YR or 2.5Y
Value—2 or 3
Chroma—1 or 2
Texture—silt loam
Content of rock fragments—none
Reaction—strongly acid or moderately acid

Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—very strongly acid to neutral

2Bt or 2Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—clay loam or loam
Content of rock fragments—1 to 10 percent
Reaction—moderately acid to slightly alkaline

2BC or 2C horizon:
Hue—10YR
Value—5 or 6
Chroma—3 or 4
Texture—loam
Content of rock fragments—2 to 15 percent
Reaction—slightly alkaline or moderately alkaline

353A—Toronto silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits and shoulders

Map Unit Composition

Toronto and similar soils: 95 percent
Dissimilar soils: 5 percent

Soils of Minor Extent

Similar soils:
- Soils that have a thick dark surface layer
- Soils that have a thin light-colored surface layer
- Soils that have a sandy substratum

Dissimilar soils:
- The moderately well drained Wingate soils on gently sloping shoulders and backslopes
- The poorly drained Drummer soils in swales

Properties and Qualities of the Toronto Soil

Parent material: Loess over till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.6 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest perched seasonal high water table: 0.5 foot, January through May
Ponding: None
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland category: Prime farmland where drained
Hydric soil status: Not hydric

533—Urban land

- This map unit occurs as areas that are covered by pavement and buildings. Because of extensive land smoothing, the areas are generally nearly level or gently sloping. Most of the paved areas are parking lots adjacent to shopping centers, industrial plants, and other commercial buildings. Included in mapping are isolated areas of the poorly drained Drummer soils and the somewhat poorly drained Raub soils that make up lawns and parkways in an urban landscape.

Interpretive Groups

Land capability classification: 8
Prime farmland category: Not prime farmland
Hydric soil status: Not applicable

W—Water

- This map unit includes natural bodies of water, such as perennial lakes, ponds, rivers, and streams.

Wingate Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Mollic Oxyaquic Hapludalfs

Typical Pedon

Wingate silt loam, 2 to 5 percent slopes, at an elevation of 659 feet above mean sea level; Edgar County, Illinois; 985 feet north and 1,455 feet east of the southwest corner of sec. 25, T. 15 N., R. 12 W.; USGS Paris North, Illinois, topographic quadrangle; lat. 39 degrees 43 minutes 23 seconds N. and long. 87 degrees 42 minutes 07 seconds W.; UTM Zone 16S, 0439838E 4397259N, NAD 83:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure parting to moderate fine granular; friable; many very fine roots; neutral; abrupt smooth boundary.

E—9 to 12 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium platy structure; friable; common very fine roots; neutral; abrupt smooth boundary.

Bt1—12 to 22 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; firm; few very fine roots; many distinct brown (10YR 4/3) clay films on faces of peds; moderately acid; clear smooth boundary.

Bt2—22 to 27 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium angular blocky structure; firm; few very fine roots; common distinct brown (10YR 4/3) clay films on faces of peds; moderately acid; clear smooth boundary.

2Bt3—27 to 36 inches; yellowish brown (10YR 5/6) clay loam; moderate coarse subangular blocky structure; firm; few very fine roots; common distinct brown (10YR 4/3) clay films on faces of peds; few distinct black (10YR 2/1) iron and manganese oxide coatings on faces of peds; common fine and medium irregular black (10YR 2/1) weakly cemented iron-manganese oxide nodules throughout; few fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; about 2 percent fine gravel; moderately acid; clear smooth boundary.

2Bt4—36 to 52 inches; yellowish brown (10YR 5/4) clay loam; weak coarse subangular blocky structure; firm; few distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine rounded black (10YR 2/1) weakly cemented iron-manganese oxide nodules throughout; about 5 percent fine gravel; neutral; gradual smooth boundary.

2C—52 to 60 inches; yellowish brown (10YR 5/4) loam; massive; firm; few fine rounded black (10YR 2/1) weakly cemented iron-manganese oxide nodules throughout; about 5 percent fine gravel; slightly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the loess: 20 to 40 inches
Depth to carbonates: 29 to 65 inches
Depth to the base of the argillic horizon: 29 to 55 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

E horizon (where present):
Hue—10YR
Value—4 or 5
Chroma—3
Texture—silt loam
Content of rock fragments—none
Reaction—moderately acid to neutral

Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam or silt loam
Content of rock fragments—none
Reaction—strongly acid to neutral

2Bt or 2BC horizon:
Hue—10YR or 7.5YR
Value—5 or 6
Chroma—2 to 6
Texture—clay loam or loam
Content of rock fragments—1 to 7 percent
Reaction—moderately acid to slightly alkaline

2C horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—2 to 6
Texture—loam
Content of rock fragments—1 to 10 percent
Reaction—neutral to moderately alkaline

348B—Wingate silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits and shoulders

Map Unit Composition

Wingate and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that have a thicker dark surface layer
- Soils that have a thin light-colored surface layer
- Soils that are eroded
- Soils that have a sandy substratum

Dissimilar soils:
- The somewhat poorly drained Toronto and Fincastle soils on footslopes; in positions below those of the Wingate soil
- The poorly drained Drummer soils in swales

Properties and Qualities of the Wingate Soil

Parent material: Loess over till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.5 inches to a depth of 60 inches
Content of organic matter in the surface layer: 2.0 to 4.0 percent
Shrink-swell potential: Moderate

Depth and months of the highest perched seasonal high water table: 1.5 feet, February through April
Ponding: None
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Wirt Series

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Dystric Fluventic Eutrudepts

Typical Pedon

Wirt silt loam, 0 to 2 percent slopes, frequently flooded, at an elevation of about 574 feet above mean sea level; Coles County, Illinois; about 390 feet west and 540 feet south of the northeast corner of sec. 14, T. 11 N., R. 9 E.; USGS Charleston South, Illinois, topographic quadrangle; lat. 39 degrees 24 minutes 10.8 seconds N. and 88 degrees 09 minutes 36.6 seconds W.; UTM Zone 16S, 0400111E 4362143N, NAD 83:

A—0 to 3 inches; very dark grayish brown (10YR 3/2) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure parting to moderate fine granular; friable; neutral; abrupt smooth boundary.
Bw1—3 to 23 inches; brown (10YR 4/3) silt loam; weak fine and medium subangular blocky structure; friable; common distinct dark brown (10YR 3/3) organic coatings on faces of peds; neutral; clear smooth boundary.
Bw2—23 to 32 inches; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; firm; common distinct dark brown (10YR 3/3) organic coatings on faces of peds; neutral; clear smooth boundary.
C—32 to 60 inches; brown (10YR 5/3) and dark yellowish brown (10YR 4/4), stratified loam, sandy loam, and silt loam; massive; friable; neutral.

Range in Characteristics

Depth to carbonates: 40 or more inches
Depth to the base of the cambic horizon: 24 to 48 inches

Ap or A horizon:
Hue—10YR
Value—2 to 5
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—0 to 5 percent
Reaction—moderately acid to neutral

Bw horizon(s):
Hue—10YR
Value—3 to 5
Chroma—3 to 6

Texture—loam, silt loam, or fine sandy loam
Content of rock fragments—0 to 15 percent
Reaction—moderately acid to neutral

C horizon:
Hue—10YR
Value—3 to 5
Chroma—3 to 6
Texture—stratified sandy loam, loam, and silt loam; strata of sand and loamy sand below a depth of 40 inches in some pedons
Content of rock fragments—0 to 15 percent
Reaction—moderately acid to neutral

3226A—Wirt silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood-plain steps

Map Unit Composition

Wirt and similar soils: 90 percent
Dissimilar soils: 10 percent

Soils of Minor Extent

Similar soils:
- Soils that are subject to occasional flooding
- Soils that have a dark surface layer

Dissimilar soils:
- Soils that are subject to rare flooding
- The somewhat poorly drained Brouillett, Shoals, and Tice soils in dips and swales; in positions below those of the Wirt soil
- The poorly drained Sawmill soils in swales

Properties and Qualities of the Wirt Soil

Parent material: Stratified loamy alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate or moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 5.9 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Ponding: None
Frequency and most likely period of flooding: Frequent, November through June
Potential for frost action: Moderate
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Low
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 3w

Prime farmland category: Prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

Xenia Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Hapludalfs

Typical Pedon

Xenia silt loam, 2 to 5 percent slopes, at an elevation of about 705 feet above mean sea level; Champaign County, Illinois; about 390 feet north and 860 feet west of the southeast corner of sec. 34, T. 20 N., R. 9 E.; USGS Thomasboro, Illinois, topographic quadrangle; lat. 40 degrees 08 minutes 35.5 seconds N. and long. 88 degrees 09 minutes 57.1 seconds W.; UTM Zone 16T, 0400686E 4444304N, NAD 83:

A—0 to 4 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate very fine and fine granular structure; friable; neutral; abrupt smooth boundary.

E—4 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium platy structure; friable; many faint light brownish gray (10YR 6/2) silt coatings on faces of peds; moderately acid; clear smooth boundary.

BEt—10 to 16 inches; brown (10YR 4/3) silt loam; weak fine subangular blocky structure; friable; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common distinct light brownish gray (10YR 6/2) silt coatings on faces of peds; moderately acid; clear smooth boundary.

Bt1—16 to 23 inches; brown (10YR 4/3) silty clay loam; moderate fine and medium subangular blocky structure; friable; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common distinct light brownish gray (10YR 6/2) silt coatings on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions in the matrix; moderately acid; clear smooth boundary.

Bt2—23 to 37 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium and coarse subangular blocky structure; firm; common distinct dark brown (10YR 3/3) organo-clay films on faces of peds; many distinct grayish brown (10YR 5/2) silt coatings on faces of peds; few medium distinct grayish brown (10YR 5/2) and few medium faint brown (10YR 5/3) iron depletions in the matrix; moderately acid; clear smooth boundary.

2Bt3—37 to 48 inches; brown (10YR 5/3) and light olive brown (2.5Y 5/4) clay loam; weak coarse subangular blocky structure; firm; few distinct brown (10YR 4/3) clay films on faces of peds; moderately acid; gradual smooth boundary.

2Bt4—48 to 57 inches; brown (10YR 5/3) and light olive brown (2.5Y 5/4) loam; weak coarse prismatic structure; firm; few distinct dark brown (10YR 3/3) organo-clay films on faces of peds; slightly acid; clear smooth boundary.

2Cd—57 to 72 inches; light olive brown (2.5Y 5/4) loam; massive; firm; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: 22 to 40 inches
Depth to carbonates: 40 to 60 inches
Depth to the base of the argillic horizon: 40 to 60 inches

Ap or A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture—silt loam

Content of rock fragments—0 to 1 percent
Reaction—moderately acid to neutral

E and/or BE horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam
Content of rock fragments—0 to 1 percent
Reaction—moderately acid to neutral

Bt horizon:
Hue—10YR
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam
Content of rock fragments—0 to 1 percent
Reaction—strongly acid to neutral

2Bt horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—loam or clay loam
Content of rock fragments—2 to 8 percent
Reaction—moderately acid to neutral

2BC horizon (where present):
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture—loam or clay loam
Content of rock fragments—2 to 8 percent
Reaction—neutral or slightly alkaline

2Cd horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 or 4
Texture—loam
Content of rock fragments—2 to 8 percent
Reaction—slightly alkaline or moderately alkaline

291B—Xenia silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits and shoulders

Map Unit Composition

Xenia and similar soils: 94 percent
Dissimilar soils: 6 percent

Soils of Minor Extent

Similar soils:
- Soils that have a dark surface layer

- Soils that have a loamy subsoil
- Soils that are grayer in the subsoil
- Soils that have less gray in the subsoil
- Soils that have a sandy substratum

Dissimilar soils:

- The poorly drained Drummer soils in swales

Properties and Qualities of the Xenia Soil

Parent material: Loess over till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: 40 to 60 inches to dense material
Available water capacity: About 9.8 inches to a depth of 60 inches
Content of organic matter in the surface layer: 1.0 to 2.5 percent
Shrink-swell potential: Moderate
Depth and months of the highest perched seasonal high water table: 1.5 feet, January through May
Ponding: None
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Very high
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of gravel, sand, reclamation material, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses or describe specific management concerns. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the potential of the soils for the use. Terms for limitation classes are *not limited, somewhat limited,* and *very limited.* Terms indicating the potential of the soils for a given use are *good, fair,* and *poor.*

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact

on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Soil Series and Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

In 2002, approximately 238,586 acres in Coles County was used as cropland. The market value of agricultural products sold in the county was about $61 million. The Illinois Agricultural Statistics Service Web site provides the following 7-year averages for Coles County for the years 1998 through 2004: corn was grown on about 118,000 acres with a yield of 158 bushels per acre; soybeans were grown on about 113,000 acres with a yield of 47 bushels per acre; wheat was grown on about 2,600 acres with a yield of 64.9 bushels per acre; and hay-alfalfa was grown on about 3,420 acres with a yield of 3.28 tons per acre (Illinois Agricultural Statistics Service, 2006). The remaining farmland acreage was devoted to livestock production, including pasture and feedlots, miscellaneous crops, and farm infrastructure (buildings, farm roads, and woodlots) (USDA, National Agricultural Statistics Service, 2006).

The soils in Coles County have excellent potential for continued crop production, particularly if the latest crop production technologies are applied. This soil survey can be used as a resource for applying the latest crop production technologies.

Limitations Affecting Cropland and Pastureland

The management concerns affecting the use of the detailed soil map units in the survey area for crops and pasture are shown in table 6.

Cropland

The main concerns affecting the management of cropland in Coles County are crusting, excess lime, excessive permeability, flooding, high pH, ponding, poor tilth, restricted permeability, root-restrictive layers, water erosion, and wetness.

Crusting occurs when flowing water or raindrops break down soil structural units, moving clay downward and leaving a concentration of sand and silt particles on the soil surface. Crusts can reduce the rate of water infiltration, increase the runoff rate, inhibit seedling emergence and proper growth, and reduce oxygen diffusion to seedlings. Generally, if the structure in the surface layer is weak, a crust forms on the surface during periods of intense rainfall. Brouillett soils and many eroded soils, such as Dana, Lenzburg, Russell, Senachwine, and Somonauk soils, are examples of soils that have a low content of organic matter in the surface layer, which typically increases the risk of surface crusting. Practices that help to minimize surface crusting and improve tilth are those that protect the surface from the impact of raindrops and from flowing water. Incorporating green manure crops, manure, or crop residue into the soil and using a system of conservation tillage can help to prevent crusting by improving tilth.

Excess lime can cause deficiencies of available iron, manganese, copper, and zinc. The uptake and utilization of boron by plants may be hindered. The availability of

phosphate may be reduced, and the absorption of phosphorus by plants may be affected. Hartsburg and Lenzburg soils are examples of soils that have excess lime. This limitation can be overcome by incorporating green manure crops, manure, or crop residue into the soil; applying a system of conservation tillage; applying a nutrient management system, including additions of trace elements; and using conservation cropping systems. Plants that are tolerant of excess lime, such as barley, should be selected for planting in areas of these soils.

Excessive permeability can cause deep leaching of nutrients and pesticides. Landes soils are examples of soils that have excessive permeability. Testing soils for application rates, taking into account contributions from previous crops and manure applications, is essential for establishing proper nutrient management. The contamination of ground water should be avoided by applying nutrients at the proper time and using the proper application methods.

Flooding is considered a hazard when the map unit is commonly, occasionally, frequently, or very frequently flooded during the growing season. Flooding occurs in unprotected areas along the major rivers and their tributaries. Dikes or diversions reduce the extent of crop damage caused by floodwater. Flooding is a hazard on approximately 16,300 acres in Coles County. Most of the affected soils are frequently flooded by stream overflow. Flooding typically occurs in winter and spring. Damage to crops, particularly winter small grain crops, occurs in some years (fig. 9).

Brouillett, Landes, Lawson, Ross, Sawmill, Shoals, Tice, and Wirt soils are examples of soils that are subject to frequent flooding for brief periods. In areas of these soils, planting crops that are adapted to a shorter growing season and wetter conditions reduces the risk of crop damage caused by floodwater. Controlling runoff from higher ground within the watershed can reduce the frequency and severity of flooding. Changing land use from cropland to pasture or forestland can also minimize economic damage.

Figure 9.—Flooding can delay planting or cause crop damage in some years. Pictured is an area of Ross silt loam, 0 to 2 percent slopes, frequently flooded.

High pH can create plant toxicity or decreased availability of plant nutrients, either of which can affect the health and vigor of the plants. Hartsburg, Lenzburg, and Senachwine soils are examples of soils with high pH in the upper 40 inches. Incorporating green manure crops, manure, or crop residue into the soil, applying a system of conservation tillage, applying a nutrient management system, including additions of trace elements, and using conservation cropping systems can help to overcome this limitation. Crops that are tolerant of high pH, such as oats and barley, should be selected for planting in areas where high pH is a concern.

Ponding inhibits aeration, increases nutrient losses, and delays spring planting (fig. 10). Soils affected by ponding in the survey area are Cisne, Drummer, Ebbert, Hartsburg, Milford, Peotone, Sawmill, Shiloh, and Thorp soils. Land grading helps to control ponding. Surface ditches and surface inlet tile also help to remove excess water if suitable outlets are available. Management of drainage in conformance with regulations affecting wetlands may require special permits and extra planning.

Poor tilth can be inherent or may be caused by excessive tillage. Soils with poor tilth generally have a surface layer that is sticky when wet and hard and cloddy when dry. Because such soils can be tilled within only a narrow range in moisture content, seedbed preparation is difficult. If the timing is not right, the resultant clods can affect seed-to-soil contact. Poor tilth inhibits seedling germination and emergence, increases the rate of runoff and the hazard of erosion, and reduces the rate of water infiltration. Soils with good tilth are granular and porous and have a high content of organic matter in the surface layer. Soils that have poor tilth generally have more clay, a lower content of organic matter, and weaker soil structure in the surface layer. The severely eroded Senachwine soils and Milford, Peotone, Shiloh, and Tice soils have poor tilth. If these soils are plowed when too wet, they can become cloddy. Practices that improve soil tilth are those that protect the surface from the impact of raindrops and from flowing water. Incorporating green manure crops, manure, or crop residue into the soil and using a system of conservation tillage can improve tilth. Surface cloddiness can be

Figure 10.—Ponding in this area of Drummer and Milford soils can delay planting in the spring.

controlled by avoiding tillage when the soil is too wet or by using no-till farming practices.

Restricted permeability interferes with internal soil drainage and aeration. Waterlogging, denitrification, compaction, delayed planting, and a higher surface runoff rate are some common effects of restricted permeability in areas used as cropland. Many of the soils in Coles County have restricted permeability. The somewhat poorly drained Bluford soils are examples. The poorly drained Brooklyn, Cisne, and Thorp soils also have restricted permeability. In areas of these soils, drainage is required for optimum crop yields. In areas of poorly drained soils that have restricted permeability, a system of surface ditches composed of mains and laterals is the most common drainage method used. Tile drainage systems tend to perform poorly in areas of these soils, and closer spacing of the tiles may be necessary. Conservation tillage or no-till and crop residue management can help to minimize compaction and reduce the surface runoff rate.

Root-restrictive layers include dense material, natric horizons, bedrock, and fragipans. Such layers can increase the hazard of erosion and can affect plant growth by limiting nutrients and the available water capacity. Examples of soils with root-restrictive layers are Bluford and Fincastle soils. A combination of conservation measures, including using special tillage practices, incorporating organic material into the soil, and selecting proper crop varieties, can help to overcome this limitation.

Water erosion can result in a reduction in soil aggregate stability, which reduces the rate of water infiltration and increases the rate of surface runoff (Brady, 1984). Soils that have long or steep slopes are more susceptible to water erosion than some other soils. Sheet and rill erosion is a hazard in areas where slopes are long or where the soils are subject to concentrated flow. Excessive runoff can reduce the quality of surface water through sedimentation and contamination by agricultural chemicals attached to soil particles in the sediment that enters streams, rivers, water impoundments, and road ditches. Water erosion is a hazard on about 27 percent of the total land area in the county. Dana, Martinsville, Russell, Senachwine, and Somonauk soils are examples of soils that are susceptible to water erosion. Erosion can be controlled by a conservation tillage system that leaves crop residue on the surface after planting or by a cropping system that includes rotations of grasses and legumes. On soils that have long, uniform slopes, contour farming and/or terraces in combination with a conservation tillage system can help to control erosion. Sedimentation problems should be considered if proper drainage is to be maintained. Removing the sediments is expensive. Management measures that help to control water erosion can also reduce sedimentation and improve the quality of water available for rural, municipal, and recreational uses and for fish and wildlife.

Wetness is a management concern on about 55 percent of the acreage in Coles County. Some soils are naturally so wet that the production of crops generally is not possible unless a drainage system is installed. The poorly drained Drummer, Milford, and Thorp soils are examples. Seasonal wetness in areas of somewhat poorly drained soils, such as Flanagan, Lawson, Raub, and Toronto soils, can delay planting in wet years. Most of the soils needing drainage are already drained by surface ditches or tile. The maintenance or replacement of drainage systems is needed if maximum efficiency is to be achieved. Subsurface drains can lower the seasonal high water table if suitable outlets are available. In soils that have a high content of clay and restricted permeability, subsurface drainage is not practical. In these soils, surface ditches are used to reduce the wetness. Management of drainage in conformance with regulations influencing wetlands may require special permits and extra planning.

Wind erosion can be a concern on soils that have a surface layer of sand or loamy sand. Wind erosion can also occur on fine textured soils. Generally, most soils on which the surface is exposed as a result of cultivation are subject to wind erosion (fig. 11). The susceptibility of the soil to wind erosion is affected by the texture of the

Figure 11.—Soil blowing in the early spring reduces visibility and creates safety concerns.

surface layer; the moisture content of the soil; the content of organic matter, calcium carbonate, and rock fragments; aggregate stability; and cultivation practices. Large areas that are not protected by field windbreaks and cleared areas on flood plains are vulnerable. Landes, Lenzburg, Milford, Peotone, and Shiloh soils are somewhat susceptible to wind erosion. Conservation tillage, crop residue management, moisture management, conservation structures, and windbreaks can be used to limit the damage caused by wind erosion.

Pastureland

Growing legumes, cool-season grasses, and warm-season grasses that are suited to the soils and climate of the area helps to maintain a productive stand of pasture. Suitable pasture and hay plants include several legumes, cool-season grasses, and native warm-season grasses. Alfalfa, red clover, alsike clover, and ladino clover are legumes commonly grown in the county. Alfalfa is best suited to well drained soils, such as Camden, Martinsville, Proctor, Russell, and Senachwine soils, and moderately well drained soils, such as Dana, Somonauk, Wingate, and Xenia soils. Alfalfa is also suited to some of the somewhat poorly drained soils, such as Brenton, Fincastle, Flanagan, Hoyleton, Millbrook, Raub, and Starks soils. Other legumes, such as alsike clover, red clover, and ladino clover, are more tolerant of wetter conditions. These legumes are best suited to poorly drained soils, such as Cisne, Drummer, Hartsburg, and Milford soils, and some of the somewhat poorly drained soils, such as Bluford and Toronto soils.

Cool-season grasses commonly grown in the county include smooth bromegrass, orchardgrass, and tall fescue. These grasses can be used alone or in mixtures with legumes. Native warm-season grasses, such as indiangrass, big bluestem, and switchgrass, grow very well in the summer. They require different management techniques from those used for cool-season grasses.

Proper grazing is essential for the production of high-quality forage, stand survival, and erosion control. It helps plants maintain sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control is generally needed. Using rotation grazing, deferring grazing when the soil is wet, and applying lime and fertilizers as needed also are important management practices.

The main concerns affecting the management of pastureland in the survey area are equipment limitations, excess lime, excessive permeability, flooding, frost heave, high pH, low fertility, low pH, ponding, poor tilth, root-restrictive layers, water erosion, and wetness.

Bedrock can be a concern in some areas. Soils that have bedrock within a depth of 40 inches can be susceptible to erosion. Bedrock can limit the effectiveness of drainage systems and affects plant growth by limiting nutrients and the available water capacity. Although there are rock outcrops in Coles County, no soils were identified as having bedrock within a depth of 40 inches (fig. 12).

Equipment limitations make fertilization, harvest, pasture renovation, and seedbed preparation difficult or costly. The use of equipment is limited in moderately steep and steep areas of Senachwine soils.

Excess lime can result in deficiencies in available iron, manganese, copper, and zinc. The uptake and utilization of boron by plants may be hindered. The availability of phosphate may be reduced, and the absorption of phosphorus by plants may be affected. Hartsburg and Lenzburg soils are examples of soils that have excess lime. Establishing proper nutrient management, including additions of trace elements, and applying manure can help to overcome this limitation. Big bluestem, smooth brome, red fescue, tall fescue, timothy, and other plants that are tolerant of excess lime should be selected for planting in areas of these soils.

Figure 12.—A bedrock escarpment in an area of Senachwine silt loam, 35 to 60 percent slopes.

Excessive permeability can cause deep leaching of nutrients and pesticides. Landes soils are examples of soils that have excessive permeability. Testing soils for application rates is essential for establishing proper nutrient management. The contamination of ground water can be prevented by applying nutrients at the proper time and using the proper application methods.

Flooding occurs in unprotected areas along the major rivers and their tributaries. Surface drainage ditches help to remove floodwater where suitable outlets are available. Flooding may damage pasture plants in some years. Brouillett, Landes, Lawson, Ross, Sawmill, Shoals, Tice, and Wirt soils are examples of soils that are subject to frequent flooding for brief periods. Selecting forage and hay varieties that are adapted to a shorter growing season and wetter conditions can reduce the extent of flood damage. Dikes and diversions can help to minimize the extent of damage caused by frequent or occasional flooding. Restricted use during wet periods helps to keep the pasture in good condition. Management of drainage in conformance with regulations affecting wetlands may require special permits and extra planning.

Frost heave occurs in soils when ice lenses or bands develop into or push an ice wedge between layers of soil near the surface. The ice wedges heave the overlying soil layer upward, snapping the roots. Soils that have textures low in sand have small pores that hold water and enable ice lenses to form. Brooklyn, Cisne, Drummer, Ebbert, Hartsburg, Milford, Peotone, Sawmill, Shiloh, and Thorp soils are examples of soils that are susceptible to frost heave. Selecting adapted forage and hay varieties helps to minimize the effects of frost heave. Timely rotation of grazing maintains a vegetative cover on the surface, which insulates the soil and thus reduces the effects of frost heave. In winter, leaving stubble 4 to 6 inches high helps to prevent frost heave. Using grass-legume mixtures can also help to prevent frost heave.

High pH can create plant toxicity or reduce the availability of plant nutrients, either of which can affect the health and vigor of the plants. Hartsburg, Lenzburg, and Senachwine soils are examples of soils with high pH in the upper 40 inches. This limitation can be overcome by incorporating green manure crops, manure, or crop residue into the soil; applying a system of conservation tillage; applying a nutrient management system, including additions of trace elements; and using conservation cropping systems. Selecting crops that are tolerant of high pH, such as oats and barley, can also help to overcome this limitation.

Low fertility is associated with a low content of organic matter and a low cation-exchange capacity, which may result in a limited capacity of the soil to retain nutrients for plant use. Lenzburg soils and severely eroded Senachwine soils are examples of soils that have low fertility. Frequent applications of small amounts of fertilizer help to prevent excessive loss of plant nutrients through leaching. Using legumes as part of a seeding mixture can provide nitrogen to the grass varieties. Timely deferment of grazing helps to maintain adequate surface cover and the content of organic matter, which is a source of nutrients in the soil.

Low pH can create toxicity or reduce the availability of nutrients, either of which can affect the health and vigor of the plants. With few exceptions, almost all of the upland soils in Coles County have a pH less than or equal to 5.5 within a depth of 40 inches. Selecting adapted forage and hay varieties and applying lime according to the results of soil tests can help to overcome this limitation. Selecting species that are tolerant of acidic conditions, such as red clover, alsike clover, redtop, big bluestem, smooth brome, orchardgrass, red fescue, tall fescue, timothy, switchgrass, Kentucky bluegrass, and crimson clover, can improve the quantity and quality of livestock forage.

Ponding affects aeration and increases nutrient losses. Some soils affected by ponding in the survey area are Brooklyn, Cisne, Drummer, Ebbert, Hartsburg, Milford, Peotone, Sawmill, Shiloh, and Thorp soils. Land grading helps to control ponding. Surface ditches and surface inlet tile also help to remove excess water if suitable outlets are available. Management of drainage in conformance with regulations

affecting wetlands may require special permits and extra planning. Selecting forage and hay varieties adapted to wet conditions can improve forage production. Restricted use during wet periods helps to keep the pasture in good condition.

Poor tilth in pasture or hayland can be inherent or may be caused by erosion or excessive tillage. Soils with poor tilth generally have a surface layer that is sticky when wet and hard and cloddy when dry. Because these soils can be tilled only within a narrow range in moisture content, seedbed preparation is difficult. If the timing is not right, the resultant clods can affect seed-to-soil contact. Poor tilth inhibits seedling germination and emergence, increases runoff and erosion, and reduces the rate of water infiltration. Soils with good tilth are granular and porous and have a high content of organic matter in the surface layer. Soils that have poor tilth generally have more clay, a lower content of organic matter, and weaker soil structure in the surface layer. Tice soils and the severely eroded Senachwine soils have poor tilth. If these soils are tilled when too wet, they can become cloddy. Practices that improve soil tilth are those that protect the surface from the impact of raindrops and from flowing water. Surface cloddiness can be controlled by avoiding tillage when the soil is too wet, using no-till planting methods, and using a planned grazing system in areas of pastureland.

Root-restrictive layers include dense material, natric horizons, bedrock, and fragipans. Such layers can increase the hazard of erosion and limit the effectiveness of drainage systems. Root-restrictive layers affect plant growth by limiting available nutrients and the available water capacity. Bluford soils are examples of soils that have a root-restrictive layer. A combination of conservation measures, including using special tillage practices, incorporating organic material into the soil, and selecting adapted forage and hay varieties, can help to overcome this limitation.

Water erosion reduces the productivity of the soil. It also results in sediments, livestock manure, and added nutrients entering streams, rivers, water impoundments, and road ditches. Soils with long or steep slopes are susceptible to water erosion. Many of the soils in Coles County, including Bluford, Camden, Dana, Martinsville, Proctor, Russell, Senachwine, Somonauk, Wingate, and Xenia soils, are susceptible to water erosion. Using a system of rotation grazing prevents overgrazing and thus prevents surface compaction and excessive runoff and helps to control erosion. Tilling on the contour, using a no-till system of seeding, and selecting adapted forage and hay varieties also help to control erosion.

Wetness is a management concern on about 55 percent of the acreage in Coles County. Some soils are naturally so wet that the production of crops generally is not possible unless a drainage system is installed. Wetness is a concern in areas of the poorly drained Brooklyn, Cisne, Drummer, Ebbert, Hartsburg, Milford, Peotone, Sawmill, Shiloh, and Thorp soils. Most of the soils needing drainage are already drained by surface ditches or tile. The maintenance or replacement of drainage systems is necessary for maximum efficiency. Subsurface drains can lower the seasonal high water table if suitable outlets are available. In soils that have a high clay content and restricted permeability, subsurface drainage is not practical. In these soils, surface ditches are used to reduce the wetness. Management of drainage in conformance with regulations influencing wetlands may require special permits and extra planning. In undrained areas, grasses and forbs, such as switchgrass, alsike clover, and redtop, should grow well.

Erosion Control

Generally, a combination of several practices is needed to control erosion. Conservation tillage, including chisel tillage and no-till, is common in Coles County. Contour stripcropping, contour farming, conservation cropping systems, crop residue management, terraces, diversions, buffer strips, riparian areas, and grassed waterways help to prevent excessive soil loss.

The loss of the surface layer through erosion causes damage in two ways. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. The subsoil generally has fewer plant nutrients, a lower content of organic matter, and a higher content of clay than the surface layer. As the content of organic matter in the tilled layer decreases and the clay content increases, soil tilth is reduced. Loss of soil tilth increases the likelihood that a crust will form on the surface; the crust can reduce the rate of water infiltration. The higher clay content increases the likelihood that the surface layer will become cloddy when tilled, especially if it is tilled when wet. As a result, preparing a seedbed becomes very difficult. Water tends to puddle on soils in eroded areas, and the crust that forms when the puddles dry up can increase the rate of surface runoff. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as Bluford soils, and on soils that are moderately eroded, such as Dana, Russell, Senachwine, and Somonauk soils. Second, erosion on farmland results in the sedimentation and pollution of streams. Controlling erosion minimizes this pollution and improves the quality of water for municipal and recreational uses and for fish and other wildlife.

Erosion-control measures provide protective plant cover, increase the rate of water infiltration, and reduce the runoff rate. A cropping system that keeps plants on the surface for extended periods reduces the hazard of erosion and preserves the productive capacity of the soils. Including forage crops, such as grasses and legumes, in the cropping sequence helps to control erosion in the more sloping areas. It also provides nitrogen and improves tilth for the next crop.

Terraces reduce the hazard of erosion by shortening the slopes and by controlling runoff. If a tile outlet terrace is used, the water that collects behind the terrace is removed by tile at a slow, controlled rate.

Grassed waterways reduce the hazard of erosion by providing a stable channel for water runoff on sloping land (fig. 13).

Figure 13.—A grassed waterway reduces the runoff rate in an area of Drummer soils.

Conservation buffer strips and riparian areas can help to maintain stream channels and inhibit runoff. A stream channel without trees is likely to slump, but a protected riparian area can help to maintain the stream channel.

Contour farming involves conducting tillage or other fieldwork along the contour of a slope rather than perpendicular to it. This practice helps to control erosion because it results in the formation of small ridges perpendicular to the slope of the land. The ridges greatly reduce the velocity of the water moving downhill.

Stripcropping, although not used widely in the survey area, is an effective erosion-control measure if used in combination with other methods. It involves alternating rows or strips of one crop with rows of another crop that has a different rate of maturity and a different canopy cover. The rows are planted on the contour. The resulting vegetative cover reduces the hazard of erosion by protecting the surface from the impact of raindrops.

Erosion-control management through tillage and cropping systems is effective alone or in combination on most of the farmland in the county. The combination used and its effectiveness depends on soil characteristics and topography. Information about the design of erosion-control practices for each kind of soil is provided in the Technical Guide, which is available in the local office of the Natural Resources Conservation Service.

Conservation Tillage

Most of the cropland in Coles County can be protected from erosion by using a conservation tillage system. Conservation tillage includes any noninversion tillage practice that keeps a protective amount of residue on the surface throughout the year. The crop residue increases the rate of water infiltration by improving tilth. It also protects the surface from the beating action of raindrops, prevents surface crusting, and provides a more friable seedbed for good germination (fig. 14).

Chisel tillage is a system of conservation tillage that is commonly used in Coles County. This system leaves crop residue on 20 to 60 percent of the surface. The extent of the coverage depends on the type of chisel plow used, the speed with which the equipment moves through the field, and the kind of crop planted. Chisel tillage often follows stalk chopping in the fall or is done immediately prior to planting in the spring.

In no-till systems, a grain crop is planted directly in a cover crop, sod, or the crop residue of the previous year. A special planter that disturbs only the row area is used. Herbicides are used to control competing vegetation. The nearly complete ground cover protects the soil from the impact of raindrops and helps to control erosion caused by runoff.

Drainage Systems

Drainage systems consist of subsurface tile drains, surface inlets, open drainage ditches, or a combination of these. They have been installed in most areas of poorly drained and somewhat poorly drained soils in the county (fig. 15). As a result, these soils are adequately drained for the crops commonly grown in the area. Some areas of poorly drained soils require surface tile inlets or shallow surface ditches to remove ponded water. Some areas of somewhat poorly drained soils are wet long enough that productivity may be reduced unless they are artificially drained. Management of drainage in conformity with regulations affecting wetlands may require special permits and extra planning.

The design of surface and subsurface drainage systems varies with the kind of soil and the availability of drainage outlets. Some areas of poorly drained soils in depressions require a combination of surface drains and tile drains. The tile should be more closely spaced in the more slowly permeable soils than in the more rapidly

Figure 14.—Corn residue on this Flanagan soil improves tilth and the nutrient-holding capacity of the soil.

permeable soils. Manipulating drainage can allow the producer to conserve moisture, manage weeds and insects, and limit the leaching of nutrients and chemicals.

Further information about drainage systems is provided in the Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 7. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered (Olson and Lang, 2000; Olson and others, 2000).

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

Yields for grass-legume pasture also are shown in table 7. Pasture yields are expressed in terms of animal unit months. An animal unit month (AUM) is the amount

of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

The estimated yields in the table reflect the productive capacity of each soil for each of the principal crops and pasture plants. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 7 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forestland or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA, 1961).

Figure 15.—Drainage tile is used extensively throughout Coles County in areas of poorly drained soils, such as Drummer soils. The drainage system allows earlier planting and results in higher yields.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, or wildlife habitat.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2e-4 and 3e-6. These units are not given in all soil surveys.

The capability classification of the soils in this survey area is given in the section "Soil Series and Detailed Soil Map Units" and in the yields table.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for

the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

About 281,800 acres, or 86 percent of the total acreage in Coles County, meets the requirements for prime farmland.

The map units in the survey area that are considered prime farmland are listed in table 8. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 5. The location is shown on the detailed soil maps. Some of the soil qualities that affect use and management are described under the heading "Soil Series and Detailed Soil Map Units."

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These

visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform. Approximately 107,622 acres, or 33 percent of the land area in Coles County, meets the criteria for hydric soils. Table 9 lists the map units that include hydric soils, either as major components or as soils of minor extent. The hydric soils listed in the table meet the definition of a hydric soil and have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and Vasilas, 2006).

The criteria for hydric soils are represented by codes in the table (for example, 2B3). Definitions for the codes are as follows:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
   - A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
   - B. are poorly drained or very poorly drained and have either:
     - 1) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
     - 2) a water table at a depth of 0.5 foot or less during the growing season if saturated hydraulic conductivity (Ksat) is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
     - 3) a water table at a depth of 1.0 foot or less during the growing season if saturated hydraulic conductivity (Ksat) is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for long or very long duration during the growing season.
4. Soils that are frequently flooded for long or very long duration during the growing season.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Such soils as Landes, Lenzburg, Milford, Peotone, and Shiloh soils have a surface layer that is moderately or moderately highly susceptible to wind erosion. These soils make up approximately 5.6 percent of the soils in the county. They have a surface layer of fine sandy loam or sandy loam, have a high amount of finely divided calcium carbonate, or have a high content of clay in the surface layer. Field windbreaks

can be beneficial in areas of these soils. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 10 shows the height that locally grown trees and shrubs are expected to reach in 20 years on soils in the survey area. The estimates in the table are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service or from a commercial nursery.

Forestland

When the first settlers arrived, forests covered about 32 percent of the land in the survey area (Iverson and others, 1989). Since then, about 73 percent of the trees have been cleared from the areas that are most suitable for cultivation.

By 1985, only 27,700 acres, or about 8.5 percent of the acreage in Coles County, remained as forestland (Iverson and others, 1989). Most of the forestland acreage is privately owned. The most common trees in the uplands are white oak, black oak, northern red oak, shagbark hickory, white ash, green ash, sugar maple, silver maple, boxelder, black walnut, black cherry, and American elm. The most common trees on flood plains are cottonwood, sycamore, willow, bur oak, pin oak, swamp white oak, hackberry, and silver maple.

The remaining forestland acres are predominantly in areas that are too steep, too wet, or too isolated for cultivation. Most of these areas are along the drainageways of the Little Wabash and Embarras Rivers and their tributaries. If they are properly managed, the soils in these remaining forestland areas are generally well suited to growing high-quality trees (fig. 16).

The productivity of many of the remaining forestland stands could be improved with proper management. Excluding livestock from the forestland, providing protection from fire, insects, and diseases, using proper logging methods, and applying proven silvicultural methods to enhance growth and regeneration are management practices that are commonly needed in these areas.

Table 11 can help woodland owners or forest managers plan the use of soils for wood crops. Only those soils commonly used for wood crops are listed.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or online (http://soils.usda.gov/technical/).

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

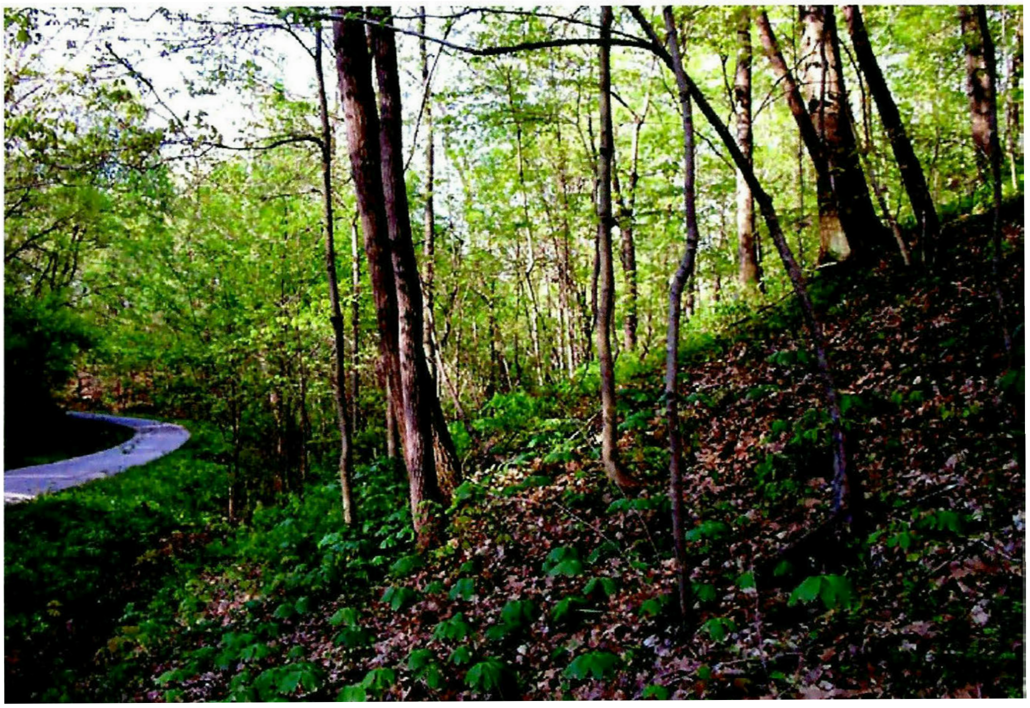


Figure 16.—A reforested area of Senachwine silt loam, 18 to 35 percent slopes.

Suggested trees to plant are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Recreation

The demand for recreational facilities is increasing throughout Coles County. Public lands available for recreation include Fox Ridge State Park and the Lincoln Log Cabin State Historic Site. Public lakes and rivers, such as Lake Charleston, Lake Mattoon, Lake Paradise, Lake Oakland, Ridge Lake, and the Embarras, Kaskaskia, and Little Wabash Rivers and their tributaries, offer public boating and fishing opportunities. Other small areas throughout the county provide playgrounds, athletic fields, golf courses, fishing ponds, camping and picnic areas, hunting areas, and facilities for target shooting.

The potential for further recreational development is favorable throughout the county. The soils having the best potential for such development are in the uplands along the banks and tributaries of the Embarras, Kaskaskia, and Little Wabash Rivers. These soils are in areas where the hilly terrain, wooded slopes, and numerous streams provide a variety of locations suited to recreational uses.

The soils of the survey area are rated in tables 12a and 12b according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be

overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in tables 12a and 12b can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas (fig. 17). For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic (fig. 18). The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Figure 17.—The gravel base at this campsite in an area of Xenia soils provides drainage and keeps the site stable during wet periods throughout the year.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

Much of Coles County is located in an area that transitions from a broad, tall-grass prairie that contained wet meadows, marshes, and areas of open water to an area dominated by central hardwood forest habitat. This area is near the southern limit of the Midwestern prairie pothole region that traditionally provided valuable nesting and

stop-over habitat for migratory waterfowl and important habitat for other wetland and openland wildlife species. Forestland areas, especially those along creeks and on moderately steep to very steep landforms, provide habitat for turkey, songbirds, birds of prey, and many mammals, including deer, squirrel, rabbits, fox, and beaver.

As the county was settled, the conversion of land for agriculture use altered these natural communities and the wildlife species associated with them. Long gone are the wolf, bison, otter, badger, black bear, cougar, and elk that roamed the area as recently as 150 years ago. The landscape of Coles County is now a mosaic of urban development, cropland, pasture, areas of forestland, wetlands, and waterways that support wildlife species that have adapted to the human-altered landscape. These species include whitetail deer, fox, coyotes, mourning doves, pheasants, squirrels, cardinals, and raccoons.

The largest area in Coles County managed for wildlife is in the Fox Ridge State Park along the Embarras River. This area is managed by the Illinois Department of Natural Resources. It is 8 miles south of Charleston, Illinois. The area is composed of 2,064 total acres, and hunting is available on 1,129 acres.

Other areas used as wildlife habitat are not necessarily set aside for this purpose. Wildlife habitat is commonly a secondary use in areas used for other purposes, such as farming. For example, the large areas of nearly level and gently sloping soils used for cultivated crops and pasture are also generally well suited to use as habitat for openland wildlife. Most areas in the county can be improved for wildlife habitat by providing needed food, cover, and water.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and

Figure 18.—A playground in an area of Xenia silt loam, 2 to 5 percent slopes. The playground functions well because the seasonal wetness of the soil was addressed in the design. This playground is in Fox Ridge State Park south of Charleston.

abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 13, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are lovegrass, orchardgrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, ragweed, wildrye, and Illinois bundleflower (fig. 19).

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, hickory, sycamore, cottonwood, elm, sassafras, serviceberry, gray dogwood, flowering dogwood, hazelnut, sumac, and raspberry. The best choices for planting on soils rated *good* are native plants, such as hazelnut, gray dogwood, silky dogwood, oak, and hickory.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are white pine, Norway spruce, balsam fir, red cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction,

Figure 19.—Native prairie plants provide food and cover for upland wildlife in an area of Senachwine soils.

salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

Shallow water areas can often be included in the design of ponds and lakes by utilizing the naturally shallow end of the impoundment. Wetland areas can also be created by installing water control valves on field drainage tiles, allowing for flooding of fields at times when they are not being used for crop production, such as after fall harvest. Valves can be opened to drain fields for spring planting while allowing soil moisture to remain high enough for good productivity. Islands, wood duck boxes, and an even mix of open water and aquatic plants help to provide optimum wildlife habitat in permanent wetland areas.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

The habitat for openland wildlife can be improved by seeding roadsides, fence rows, and wildlife travel lanes to perennial plants and legumes, such as smooth bromegrass, timothy, redtop, bluegrass, alfalfa, red clover, ladino clover, and alsike clover. Grassy areas can be enhanced with perennial native prairie grasses, such as big bluestem,

little bluestem, switchgrass, and indiangrass. Protecting nesting cover from fire, traffic, grazing, mowing, or other disturbance until after the nesting season also is important.

Warm-season grasses grow best if periodic prescribed burning is applied. Any existing woody cover should be protected from fire and grazing. Establishing hedgerows and windbreaks of trees and shrubs can provide a source of food and roosting areas. Brush piles can be built for cover along fence rows and in odd-shaped areas that are inconvenient for cultivation. Leaving crop residue on the surface after harvest and leaving waste grain in the fields can provide cover and food for wildlife throughout the winter. Also, parts of fields that are adjacent to areas of wildlife cover can be left unharvested.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for woodland wildlife can be improved by protecting native trees, shrubs, and prairie plants from grazing by livestock. Also, protecting the areas from uncontrolled fire helps to minimize the destruction of the leaf mulch and of desirable young trees, shrubs, and sprouts that provide food and cover. Establishing hedgerows, farm windbreaks, brush piles, food plots, and strips of grass or grass-legume mixtures can provide additional food and cover. Plantings for food and cover may be difficult to establish and maintain in the more sloping areas because of the hazard of erosion. Food plots of grain or seed crops should be established in the less sloping areas and should be planted on the contour. Leaving dead trees to provide den sites for raccoon, woodpeckers, opossum, and other cavity-dwelling species also improves the habitat.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, frogs, snakes, and turtles.

Measures that improve the habitat for wetland wildlife include delaying or limiting the cultivation and planting of commodity crops in the shallow depressions that are subject to ponding. Areas of smartweeds, bulrushes, burreeds, and barnyard grasses should be protected. Japanese millet, milo, and short corn varieties can be planted to provide food and cover. Blocking natural channels and manmade drainage systems can create shallow ponds and marshes. Pits dug in poorly drained or very poorly drained soils should be at least 30 feet in diameter and 2 to 3 feet deep. Such pits provide open water through the spring and early summer and thus encourage nesting by ducks. Wetland areas should be protected from grazing by livestock.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, reclamation material, roadfill, and topsoil; plan structures for water management; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 14a and 14b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost

penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Tables 15a and 15b show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result; the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill,* solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Tables 16a and 16b give information about the soils as potential sources of gravel, sand, reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

Gravel and *sand* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 16a, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

In table 16b, the rating class terms are *good, fair,* and *poor.* The features that limit the soils as sources of reclamation material, roadfill, and topsoil are specified in the table. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of these materials. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation

is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Tables 17a and 17b give information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; aquifer-fed excavated ponds; grassed waterways and surface drains; terraces and diversions; and tile drains and underground outlets. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Table 17a

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area (fig. 20).

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

Figure 20.—More than 600 small ponds are scattered throughout the county. These ponds provide recreational opportunities and habitat for wetland wildlife.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Table 17b

Grassed waterways and surface drains are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock affect the construction of grassed waterways. A hazard of wind erosion, a low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Tile drains and underground outlets are used in some areas to remove excess subsurface and surface water from the soil. The ratings in the table apply to undisturbed soils that commonly have a seasonal high water table within a depth of about 3.5 feet. Current land use is not considered in the ratings. Depth to bedrock, a dense layer, or a cemented pan, the content of large stones, and the content of clay influence the ease of digging, filling, and compacting. A seasonal high water table, ponding, and flooding may restrict the period when excavations can be made. The slope influences the use of machinery. Soil texture and depth to the water table influence the resistance to sloughing. Subsidence of organic layers influences grade and stability of tile drains. Limitations affecting areas where the tile line passes through soils in which the water table is generally below a depth of 3.5 feet are provided in the table that includes the column "shallow excavations," which is described under the heading "Building Site Development."

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics. These results are reported in table 23.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 18 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter (fig. 21). "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional

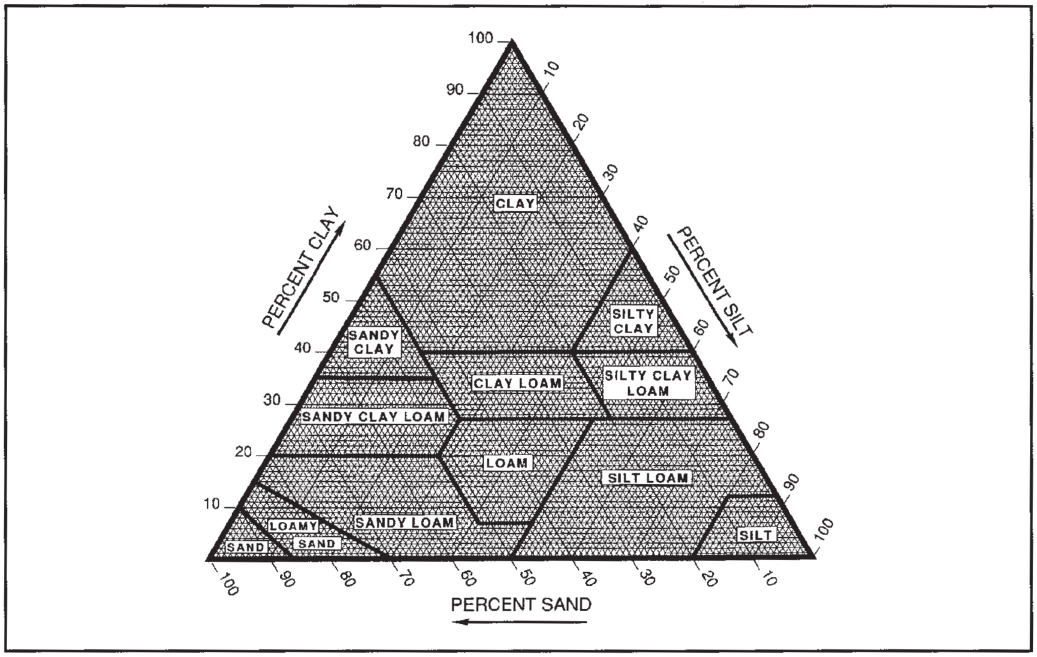


Figure 21.—Percentages of clay, silt, and sand in the basic USDA soil textural classes.

refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for selected soils, with group index numbers in parentheses, is given in table 23.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 19 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as

classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In the table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (Ksat) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (Ksat). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 19, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops.

Erosion factors are shown in table 19 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook" (http://soils.usda.gov).

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 20 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Water Features

Table 21 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 21 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides (fig. 22). Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* of flooding are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year). *Common* is used when the occasional and frequent classes are grouped for certain purposes.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of

flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Water table refers to a saturated zone in the soil. Table 21 indicates the depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone for the specified *months* in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

The table also shows the *kind of water table*, that is, apparent or perched. An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Soil Features

Table 22 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness of the restrictive layer, which significantly affects the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Engineering Index Test Data

Table 23 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are representative of the series described in the section "Soil Series and Detailed Soil Map Units." The soil samples were tested by the Illinois Department of Transportation, Springfield, Illinois.

The testing methods generally are those of the American Association of State Highway and Transportation Officials (AASHTO) or the American Society for Testing and Materials (ASTM).

The tests and methods are AASHTO classification—M 145 (AASHTO), D 3282 (ASTM); Unified classification—D 2487-00 (ASTM); Mechanical analysis—T 88 (AASHTO), D 422 (ASTM), D 2217 (ASTM); Liquid limit—T 89 (AASHTO), D 4318 (ASTM); Plasticity index—T 90 (AASHTO), D 4318 (ASTM); and Moisture density—T 99 (AASHTO), D 698 (ASTM).

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Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the “National Soil Survey Handbook” (available in local offices of the Natural Resources Conservation Service or on the Internet).

ABC soil. A soil having an A, a B, and a C horizon.

Ablation till. Loose, relatively permeable earthy material deposited during the downwasting of nearly static glacial ice, either contained within or accumulated on the surface of the glacier.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl. A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction toward which a slope faces. Also called slope aspect.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Backswamp. A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Basal till. Compact till deposited beneath the ice.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope (geomorphology). A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Batavia facies (geology). An informal separation of the Henry Formation. The Batavia facies occurs on outwash plains and consists of stratified silt loam to gravelly sandy loam with thin bands of finer or coarser material.

Batestown Member (geology). The medium textured, lowermost unit of diamicton in the Lemont Formation. Diamicton of the Batestown Member generally consists of calcareous, dark gray to gray silt loam to loam that contains lenses of gravel, sand, silt, and clay. Locally, the Batestown Member is finer texturally and therefore similar to the Yorkville Member.

Bedding plane. A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology) from the preceding or following layer; a plane of deposition. It commonly marks a change in the circumstances of deposition and may show a parting, a color difference, a change in particle size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.

Bedding system. A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Bottom land. An informal term loosely applied to various portions of a flood plain.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks. A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Cahokia Formation (geology). Deposits on flood plains and in channels of modern rivers and streams. Mostly poorly sorted sand, silt, or clay containing local deposits of sandy gravel.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Calcium carbonate. A common mineral in sediments and soils.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Carmi facies (geology). Largely quiet-water lake sediments dominated by well bedded silt and some clay. (See Equality Formation.)

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps. See Terracettes.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. See Redoximorphic features.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A dense, compact, slowly permeable subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. A claypan is commonly hard when dry and plastic and sticky when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. See Redoximorphic features.

Congeliturbate. Soil material disturbed by frost action.

Conglomerate. A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat). A type of limnic layer composed predominantly of fecal material derived from aquatic animals.

Corrosion (geomorphology). A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.

Corrosion (soil survey interpretations). Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the

stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Delavan Member (geology). The lower part of the Tiskilwa Formation deposited between 26,000 and 18,500 radiocarbon years ago. Consists of calcareous, brownish gray to pink or violet gray loam diamicton. Reclassified to include the former Fairgrange Till Member.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Diamicton. A generic term for a till-like mixture of unsorted, unstratified rock debris composed of a wide range of particle sizes. Use of this term carries no suggestion about how such debris was formed or deposited.

Diatomaceous earth. A geologic deposit of fine, grayish siliceous material composed chiefly or entirely of the remains of diatoms.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained.* These classes are defined in the “Soil Survey Manual.”

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Drift. A general term applied to all mineral material (clay, silt, sand, gravel, and boulders) transported by a glacier and deposited directly by or from the ice or transported by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines and stratified deposits that form outwash plains, eskers, kames, varves, and glaciofluvial sediments. The term is generally applied to Pleistocene glacial deposits in areas that no longer contain glaciers.

Drumlin. A low, smooth, elongated oval hill, mound, or ridge of compact till that has a core of bedrock or drift. It commonly has a blunt nose facing the direction from

which the ice approached and a gentler slope tapering in the other direction. The longer axis is parallel to the general direction of glacier flow. Drumlins are products of streamline (laminar) flow of glaciers, which molded the subglacial floor through a combination of erosion and deposition.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Dune. A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.

Earthy fill. See Mine spoil.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/ or proportion of species or in total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

End moraine. A ridgelike accumulation that is being or was produced at the outer margin of an actively flowing glacier at any given time.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian deposit. Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Equality Formation (geology). This formation consists of gray to red silt and clay, generally shows evidence of bedding structures, and occurs above the Sangamon Geosol. Predominantly occurs as a fine grained lacustrine sediment. Ranges from 26,000 radiocarbon years to present in age. (See Mason Group.)

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion surface. A land surface shaped by the action of erosion, especially by running water.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Esker. A long, narrow, sinuous, steep-sided ridge of stratified sand and gravel deposited as the bed of a stream flowing in an ice tunnel within or below the ice (subglacial) or between ice walls on top of the ice of a wasting glacier and left

behind as high ground when the ice melted. Eskers range in length from less than a kilometer to more than 160 kilometers and in height from 3 to 30 meters.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) deposited and cooled on the earth's surface.

Fairgrange Till Member (geology). Abandoned nomenclature. Pink, reddish brown, and brownish gray sandy till in east-central Illinois. (See Delavan Member.)

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Flood-plain landforms. A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

Flood-plain splay. A fan-shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.

Flood-plain step. An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.

Fluvial. Of or pertaining to rivers or streams; produced by stream or river action.

Footslope. The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Geosol. A buried soil that formed on a landscape in the past with distinctive morphological features resulting from a soil-forming environment that no longer exists at the site. The former pedogenic process was interrupted by burial. A geosol is a laterally traceable, mappable, geologic weathering profile that has a consistent stratigraphic position. (See Paleosol.)

Glacial (geology). This term embraces both the processes and results of erosion and deposition arising from the presence of an ice mass (glacier) on a landscape.

Glacial lake (relict). An area formerly occupied by a glacial lake. (See Glaciolacustrine deposits.)

Glaciofluvial deposits. Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur in the form of outwash plains, valley trains, deltas, kames, eskers, and kame terraces.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are bedded or laminated.

Glasford Formation (geology). Encompasses all till members of Illinoian age in Illinois.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground moraine. An extensive, fairly even layer of till having an uneven or undulating surface.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Haeger Member (geology). The coarse grained, uppermost unit of diamicton in the Lemont Formation. The Haeger Member consists of calcareous, light gray to gray, gravelly sandy loam diamicton that contains lenses of gravel, sand, silt, and clay.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope (geomorphology). A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

Henry Formation (geology). Consists of stratified sand and gravel that occur above the Sangamon Geosol.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope. A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

Holocene (geology). Postglacial age or time period (interglacial). About 0 to 12,600 years before present. (See Quaternary.)

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

L horizon.—A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that

in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illinoian (geology). In Illinois, represents the glacial age of ice advance preceding the Sangamonian and Wisconsinan and following the Yarmouthian and pre-Illinoian during the Pleistocene. This glaciation covered practically the entire State of Illinois with the exception of small portions in northwestern, western, and southern Illinois. (See Pleistocene.)

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general

direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology). A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Interglacial. A period of time between major glacial stages. (See Holocene, Sangamonian, and Yarmouthian.)

Intermittent stream. A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. See Redoximorphic features.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation include:

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Kame. A low mound, knob, hummock, or short irregular ridge composed of stratified sand and gravel deposited by a subglacial stream as a fan or delta at the margin of a melting glacier; by a supraglacial stream in a low place or hole on the surface of the glacier; or as a ponded deposit on the surface or at the margin of stagnant ice.

Karst (topography). A kind of topography that formed in limestone, gypsum, or other soluble rocks by dissolution and that is characterized by closed depressions, sinkholes, caves, and underground drainage.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Ksat. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain. A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lake terrace. A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Landslide. A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Lemont Formation (geology). The Lemont Formation of the Wedron Group is the succession of fine to coarse textured gray diamicton units that overlie the Tiskilwa Formation. The Lemont Formation has four differentiated members: the Lemont

Member, the Batestown Member, the Yorkville Member, and the Haeger Member. In northern Illinois, the Lemont Formation is not subdivided. The Lemont Formation consists of calcareous, gray, fine to coarse textured diamicton units that contain lenses of gravel, sand, silt, and clay.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Material transported and deposited by wind and consisting dominantly of silt-sized particles.

Low strength. The soil is not strong enough to support loads.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Mackinaw facies (geology). An informal separation of the Henry Formation. The Mackinaw facies consists of well sorted sand and gravel outwash deposits in valleys leading outward from glacier fronts. Preserved today as terraces beneath Holocene deposits in major stream and river valleys.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal proportions; formed primarily under freshwater lacustrine conditions but also formed in more saline environments.

Mason Group (geology). The Mason Group comprises three proglacial and one postglacial sorted sediment formations that represent distinct stratigraphic layers based on grain size and bedding characteristics. The proglacial units are Roxana Silt, Peoria Silt, and the Henry Formation. The postglacial unit is the Equality Formation.

Mass movement. A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.

Masses. See Redoximorphic features.

Meander belt. The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.

Meander scar. A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.

Meander scroll. One of a series of long, parallel, close-fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth's crust. Nearly all such rocks are crystalline.

Mine spoil. An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. A kind of map unit that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine. In terms of glacial geology, a mound, ridge, or other topographically distinct accumulation of unsorted, unstratified drift, predominantly till, deposited primarily by the direct action of glacial ice in a variety of landforms. Also, a general term for a landform composed mainly of till (except for kame moraines, which are composed mainly of stratified outwash) that has been deposited by a glacier. Some types of moraines are disintegration, end, ground, kame, lateral, recessional, and terminal.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Morton Tongue (geology). The lower part or tongue of Peoria Silt. It is massive, gray to gray-tan, calcareous silt. It ranges up to 10 feet in thickness and is characteristically identified in areas below materials of the Wedron Group. Deposition occurred 25,000 to 20,000 radiocarbon years ago. (See also Richland loess and Peoria Silt.)

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. See Redoximorphic features.

Nose slope (geomorphology). A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash. Stratified and sorted sediments (chiefly sand and gravel) removed or "washed out" from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of a glacier. The coarser material is deposited nearer to the ice.

Outwash plain. An extensive lowland area of coarse textured glaciofluvial material. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleosol. A general term used to describe a soil that formed on a landscape of the past; it may be a buried soil, a relict soil, or an exhumed soil. (See Geosol.)

Paleoterrace. An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan.*

Parent material. The unconsolidated organic and mineral material in which soil forms.

Parkland facies (geology). The Parkland facies is an informal separation of the Henry Formation occurring as dunes in outwash areas and is an informal separation of Peoria Silt if interfingered with silt in bluff areas. It consists of well sorted eolian sand deposits in the form of dunes or sheetlike deposits.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Peoria Silt (geology). Light yellow tan to gray calcareous silt that grades from sandy silt in the bluffs to clayey silt away from the bluffs. The upper part of Peoria Silt is also informally known as Richland loess where it overlies the Wedron Group. The lower part, where buried by materials of the Wedron Group, is known as the Morton Tongue. Peoria Silt covers most of Illinois and ranges in thickness from 80 feet in bluff areas along the Mississippi River to 1 or 2 feet in areas away from the bluffs. Deposition occurred 25,000 to 12,000 years ago. (See Mason Group.)

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as

"permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piatt Member (geology). The upper diamicton facies of the Tiskilwa Formation deposited between 19,000 and 18,500 radiocarbon years ago. The Piatt Member consists of gray loam diamicton containing lenses of sorted sediment. Textures may vary, especially near the surface, where this member is commonly interbedded with stratified sediment.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau (geomorphology). A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

Pleistocene (geology). The period in a geologic time series that encompasses all glacial and interglacial stages. Includes the Wisconsinan, Sangamonian, Illinoian, Yarmouthian, and pre-Illinoian. The period covered is about 12,600 to 2 million years before present.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Pore linings. See Redoximorphic features.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Quaternary (geology). The latest period of time in the stratigraphic column, about 0 to 2 million years before present, represented by local accumulations of glacial (Pleistocene) and postglacial (Holocene) deposits. An artificial division of time used to separate pre-human from post-human sedimentation.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Red beds. Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations. See Redoximorphic features.

Redoximorphic depletions. See Redoximorphic features.

Redoximorphic features. Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
   - A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*
   - B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
   - C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.

2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
    - A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
    - B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix. See Redoximorphic features.

Regolith. All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief. The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Richland loess (geology). An informal classification for the upper tongue of Peoria Silt that overlies the Wedron Group and the Henry and Equality Formations of the Mason Group. It is massive tan silt that is calcareous below the leach zone. The surface of modern soils in upland areas of the Wisconsinan till plain forms the upper boundary of this unit. The Richland loess ranges in thickness from 20 feet in bluff areas along the Illinois River to 1 or 2 feet in areas away from the bluffs. Deposition occurred 20,000 to 12,000 years ago. (See also Morton Tongue and Peoria Silt.)

Rill. A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser. The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Roxana Silt (geology). Brownish red and gray silt loam. Typically leached of carbonates. It overlies the Sangamon Geosol and is typically bounded above by Peoria Silt. It can be distinguished from Peoria Silt by being darker brown and more clayey. Deposition occurred 75,000 to 27,000 radiocarbon years ago. (See Mason Group.)

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sangamonian (geology). In Illinois, represents an interglacial age between the Illinoian and Wisconsinan glacial stages during the Pleistocene. (See Pleistocene; Geosol.)

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturated hydraulic conductivity (Ksat). See Permeability.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sedimentary rock. A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope (geomorphology). A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A closed, circular or elliptical depression, commonly funnel shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of

underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic). Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, the slope classes are as follows:

Nearly level	0 to 2 percent
Gently sloping	2 to 5 percent
Strongly sloping	5 to 10 percent
Moderately steep	10 to 18 percent
Steep	18 to 35 percent
Very steep	35 percent and higher

Slope alluvium. Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of

the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strath terrace. A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine. An end moraine that marks the farthest advance of a glacier. It typically has the form of a massive arcuate or concentric ridge, or complex of ridges, and is underlain by till and other types of drift.

Terrace (conservation). An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geomorphology). A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

Terracettes. Small, irregular steplike forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock, such as sheep or cattle.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Till. Dominantly unsorted and nonstratified drift, generally unconsolidated and deposited directly by a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders; rock fragments of various lithologies are embedded within a finer matrix that can range from clay to sandy loam.

Till plain. An extensive area of level to gently undulating soils underlain predominantly by till and bounded at the distal end by subordinate recessional or end moraines.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Tiskilwa Formation (geology). The lowermost sequence of red to gray diamicton units of the Wedron Group. The Tiskilwa Formation has three differentiated members: the Tiskilwa Member, the Delavan Member, and the Piatt Member. The Tiskilwa Formation consists of calcareous, reddish gray to gray, medium textured (clay loam to loam) diamicton units that contain lenses of gravel, sand, silt, and clay. Typically it oxidizes to reddish brown, brown, or yellowish brown.

Toeslope. The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread. The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

Upland. An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Valley fill. The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.

Vandalia Till Member (geology). The Vandalia Till Member of the Glasford Formation consists of clay loam diamicton. It is generally gray and calcareous, except where weathered. It is commonly 25 to 30 feet thick and bounded at the top by the Sangamon Geosol.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Wasco facies (geology). The Wasco facies is an informal separation of the Henry Formation. It consists of poorly sorted sand and gravel outwash deposits in kames, eskers, and deltas.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Wedron Group (geology). Mostly diamicton of the Wisconsinan Age.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Wisconsinan (geology). In Illinois, represents the last glacial stage of ice advance during the Pleistocene. Follows the Sangamonian interglacial stage. (See Pleistocene.)

Yarmouthian (geology). In Illinois, represents an interglacial stage between the pre-Illinoian and Illinoian glacial stages during the Pleistocene. (See Pleistocene.)

Yorkville Member (geology). The Yorkville Member is the middle unit of diamicton in the Lemont Formation. The Yorkville Member generally consists of calcareous gray, fine textured (silty clay to silty clay loam) diamicton that contains lenses of gravel, sand, silt, and clay. It typically oxidizes to olive brown. Locally, the Yorkville Member is coarser texturally and therefore similar to the Batestown Member.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971-2000 at Charleston, Illinois)

Month	Temperature: Average daily maximum	Temperature: Average daily minimum	Temperature: Average	Temperature: 2 years in 10 will have-- Maximum temperature higher than--	Temperature: 2 years in 10 will have-- Minimum temperature lower than--	Temperature: Average number of growing degree days*	Precipitation: Average	Precipitation: 2 years in 10 will have-- Less than--	Precipitation: 2 years in 10 will have-- More than--	Precipitation: Average number of days with 0.10 inch or more	Precipitation: Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	35.1	19.0	27.0	63	-14	3	2.20	0.88	3.32	5	9.5
February---	40.9	23.7	32.3	69	-8	7	2.46	1.25	3.53	5	4.1
March------	52.6	33.3	42.9	80	7	58	3.33	1.89	4.61	7	3.1
April------	64.7	43.2	53.9	84	22	184	3.98	1.87	5.79	8	.2
May--------	74.6	53.3	64.0	89	29	429	4.23	2.38	5.86	7	.0
June-------	83.1	62.2	72.7	96	44	681	3.94	1.95	5.67	6	.0
July-------	86.3	66.2	76.2	98	51	816	4.65	2.32	6.68	6	.0
August-----	84.3	64.3	74.3	96	49	751	3.46	1.50	5.13	5	.0
September--	78.4	56.6	67.5	93	36	526	3.17	1.21	4.80	4	.0
October----	67.0	45.5	56.2	86	25	231	3.25	1.82	4.52	5	.0
November---	52.1	35.0	43.6	76	12	55	3.85	1.85	5.58	6	1.5
December---	39.7	24.2	31.9	65	-6	9	3.26	1.55	4.74	6	4.7
Yearly:											
Average---	63.2	43.9	53.6	---	---	---	---	---	---	---	---
Extreme---	102	-27	---	99	-16	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,750	41.78	35.49	47.32	70	23.1

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Charleston, Illinois)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 11	Apr. 15	May 2
2 years in 10 later than--	Apr. 5	Apr. 11	Apr. 27
5 years in 10 later than--	Mar. 26	Apr. 4	Apr. 17
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 27	Oct. 12	Oct. 1
2 years in 10 earlier than--	Nov. 2	Oct. 18	Oct. 6
5 years in 10 earlier than--	Nov. 13	Oct. 29	Oct. 16

Table 3.--Growing Season

(Recorded in the period 1971-2000 at Charleston, Illinois)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	210	186	160
8 years in 10	217	193	167
5 years in 10	231	207	181
2 years in 10	245	221	194
1 year in 10	253	228	201

Table 4.--Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Bluford	Fine, smectitic, mesic Aeric Fragic Epiaqualfs
Brenton	Fine-silty, mixed, superactive, mesic Aquic Argiudolls
Brooklyn	Fine, smectitic, mesic Mollic Albaqualfs
Brouillett	Fine-loamy, mixed, superactive, mesic Aquic Cumulic Hapludolls
Camden	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Cisne	Fine, smectitic, mesic Mollic Albaqualfs
Dana	Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls
*Dana	Fine-silty, mixed, superactive, mesic Mollic Oxyaquic Hapludalfs
Drummer	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
Ebbert	Fine-silty, mixed, superactive, mesic Argiaquic Argialbolls
*Fincastle	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Flanagan	Fine, smectitic, mesic Aquic Argiudolls
Hartsburg	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
Hoyleton	Fine, smectitic, mesic Aquollic Hapludalfs
Landes	Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls
Lawson	Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls
*Lenzburg	Fine-loamy, mixed, active, calcareous, mesic Typic Udorthents
Martinsville	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Milford	Fine, mixed, superactive, mesic Typic Endoaquolls
*Millbrook	Fine-silty, mixed, superactive, mesic Aquollic Hapludalfs
Peotone	Fine, smectitic, mesic Cumulic Vertic Endoaquolls
Proctor	Fine-silty, mixed, superactive, mesic Typic Argiudolls
Raub	Fine-silty, mixed, superactive, mesic Aquic Argiudolls
Ross	Fine-loamy, mixed, superactive, mesic Cumulic Hapludolls
Russell	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Sawmill	Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls
Senachwine	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Shiloh	Fine, smectitic, mesic Cumulic Vertic Endoaquolls
Shoals	Fine-loamy, mixed, superactive, nonacid, mesic Fluventic Endoaquepts
Somonauk	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
*Starks	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Thorp	Fine-silty, mixed, superactive, mesic Argiaquic Argialbolls
Tice	Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls
Toronto	Fine-silty, mixed, superactive, mesic Udollic Epiaqualfs
Wingate	Fine-silty, mixed, superactive, mesic Mollic Oxyaquic Hapludalfs
Wirt	Coarse-loamy, mixed, superactive, mesic Dystric Fluventic Eutrudepts
Xenia	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs

Table 5.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
2A	Cisne silt loam, 0 to 2 percent slopes	2,306	0.7
3A	Hoyleton silt loam, 0 to 2 percent slopes	1,012	0.3
13A	Bluford silt loam, 0 to 2 percent slopes	566	0.2
13B	Bluford silt loam, 2 to 5 percent slopes	708	0.2
48A	Ebbert silt loam, 0 to 2 percent slopes	888	0.3
56B	Dana silt loam, 2 to 5 percent slopes	3,710	1.1
56B2	Dana silt loam, 2 to 5 percent slopes, eroded	10,234	3.1
132A	Starks silt loam, 0 to 2 percent slopes	1,627	0.5
136A	Brooklyn silt loam, 0 to 2 percent slopes	607	0.2
138A	Shiloh silty clay loam, 0 to 2 percent slopes	664	0.2
148B	Proctor silt loam, 2 to 5 percent slopes	195	*
149A	Brenton silt loam, 0 to 2 percent slopes	700	0.2
152A	Drummer silty clay loam, 0 to 2 percent slopes	71,868	22.0
154A	Flanagan silt loam, 0 to 2 percent slopes	23,559	7.2
206A	Thorp silt loam, 0 to 2 percent slopes	275	*
219A	Millbrook silt loam, 0 to 2 percent slopes	845	0.3
244A	Hartsburg silty clay loam, 0 to 2 percent slopes	1,351	0.4
291B	Xenia silt loam, 2 to 5 percent slopes	30,320	9.3
322B	Russell silt loam, 2 to 5 percent slopes	1,737	0.5
322C2	Russell silt loam, 5 to 10 percent slopes, eroded	4,411	1.4
330A	Peotone silty clay loam, 0 to 2 percent slopes	1,056	0.3
348B	Wingate silt loam, 2 to 5 percent slopes	15,531	4.8
353A	Toronto silt loam, 0 to 2 percent slopes	15,617	4.8
481A	Raub silt loam, 0 to 2 percent slopes	27,207	8.3
496A	Fincastle silt loam, 0 to 2 percent slopes	20,378	6.2
533	Urban land	972	0.3
570B	Martinsville silt loam, 2 to 5 percent slopes	50	*
570C2	Martinsville loam, 5 to 12 percent slopes, eroded	698	0.2
618C2	Senachwine silt loam, 5 to 10 percent slopes, eroded	13,222	4.1
618C3	Senachwine clay loam, 5 to 10 percent slopes, severely eroded	703	0.2
618D2	Senachwine silt loam, 10 to 18 percent slopes, eroded	2,558	0.8
618D3	Senachwine clay loam, 10 to 18 percent slopes, severely eroded	526	0.2
618F	Senachwine silt loam, 18 to 35 percent slopes	5,912	1.8
618G	Senachwine silt loam, 35 to 60 percent slopes	10,222	3.1
668B2	Somonauk silt loam, 2 to 5 percent slopes, eroded	2,435	0.7
722A	Drummer-Milford silty clay loams, 0 to 2 percent slopes	30,022	9.2
830	Landfill	39	*
864	Pits, quarry	211	*
865	Pits, gravel	29	*
871B	Lenzburg gravelly loam, 1 to 5 percent slopes	421	0.1
871D	Lenzburg loam, 7 to 20 percent slopes	382	0.1
3073A	Ross silt loam, 0 to 2 percent slopes, frequently flooded	1,336	0.4
3107A	Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded	1,685	0.5
3226A	Wirt silt loam, 0 to 2 percent slopes, frequently flooded	1,076	0.3
3284A	Tice silty clay loam, 0 to 2 percent slopes, frequently flooded	518	0.2
3304A	Landes fine sandy loam, 0 to 2 percent slopes, frequently flooded	4,249	1.3
3424A	Shoals silt loam, 0 to 2 percent slopes, frequently flooded	1,026	0.3
3450A	Brouillett silt loam, 0 to 2 percent slopes, frequently flooded	309	*
3451A	Lawson silt loam, 0 to 2 percent slopes, frequently flooded	6,116	1.9
7132A	Starks silt loam, 0 to 2 percent slopes, rarely flooded	387	0.1
7373B	Camden silt loam, sandy substratum, 2 to 5 percent slopes, rarely flooded	1,146	0.4
7570B	Martinsville silt loam, 2 to 5 percent slopes, rarely flooded	537	0.2
M-W	Miscellaneous water	42	*
W	Water	2,244	0.7
	Total	326,445	100.0

* Less than 0.1 percent.

Table 6.--Limitations and Hazards Affecting Cropland and Pastureland

(See text for a description of the limitations and hazards listed in this table. Only the soils that are generally available for use as cropland or pastureland are listed. Absence of an entry indicates that the soil is generally not suited to use as cropland or pastureland)

Map symbol and soil name	Limitations and hazards affecting cropland	Limitations and hazards affecting pastureland
2A:		
Cisne	Ponding, restricted permeability, wetness	Ponding, low pH, frost heave, wetness
3A:		
Hoyleton	Wetness	Wetness, low pH
13A:		
Bluford	Wetness, restricted permeability	Wetness, low pH
13B:		
Bluford	Wetness, water erosion, restricted permeability	Wetness, low pH, water erosion
48A:		
Ebbert	Ponding, restricted permeability, wetness	Ponding, low pH, frost heave, wetness
56B:		
Dana	Water erosion	Low pH, water erosion
56B2:		
Dana	Crusting, water erosion	Low pH, water erosion
132A:		
Starks	Wetness, crusting	Wetness, low pH
136A:		
Brooklyn	Ponding, restricted permeability, wetness	Ponding, low pH, frost heave, wetness
138A:		
Shiloh	Ponding, poor tilth, wetness	Ponding, frost heave, wetness
148B:		
Proctor	Water erosion	Low pH, water erosion
149A:		
Brenton	Wetness	Wetness
152A:		
Drummer	Ponding, wetness	Ponding, frost heave, wetness
154A:		
Flanagan	Wetness	Wetness
206A:		
Thorp	Ponding, restricted permeability, wetness	Ponding, low pH, frost heave, wetness
219A:		
Millbrook	Wetness	Wetness, low pH
244A:		
Hartsburg	Ponding, high pH, excess lime, wetness	Ponding, high pH, excess lime, frost heave, wetness

Table 6.--Limitations and Hazards Affecting Cropland and Pastureland--Continued

Map symbol and soil name	Limitations and hazards affecting cropland	Limitations and hazards affecting pastureland
291B:		
Xenia	Water erosion	Wetness, low pH, water erosion
322B:		
Russell	Water erosion	Low pH, water erosion
322C2:		
Russell	Crusting, water erosion	Low pH, water erosion
330A:		
Peotone	Ponding, poor tilth, wetness	Ponding, frost heave, wetness
348B:		
Wingate	Water erosion	Low pH, water erosion
353A:		
Toronto	Wetness	Wetness, low pH
481A:		
Raub	Wetness, root-restrictive layer	Wetness, root-restrictive layer, low pH
496A:		
Fincastle	Wetness, root-restrictive layer, crusting	Wetness, root-restrictive layer, low pH
570B:		
Martinsville	Water erosion	Low pH, water erosion
570C2:		
Martinsville	Water erosion	Low pH, water erosion
618C2:		
Senachwine	High pH, crusting, water erosion	Low pH, high pH, water erosion
618C3:		
Senachwine	Poor tilth, high pH, crusting, water erosion	Poor tilth, low pH, high pH, water erosion, low fertility
618D2:		
Senachwine	High pH, crusting, water erosion	Low pH, high pH, water erosion
618D3:		
Senachwine	High pH, crusting, water erosion	Poor tilth, low pH, high pH, water erosion, low fertility
618F:		
Senachwine	---	Equipment limitation, low pH, water erosion
618G:		
Senachwine	---	---
668B2:		
Somonauk	Crusting, water erosion	Low pH, water erosion
722A:		
Drummer	Ponding, wetness	Ponding, frost heave, wetness
Milford	Ponding, poor tilth, wetness	Ponding, frost heave, wetness

Table 6.--Limitations and Hazards Affecting Cropland and Pastureland--Continued

Map symbol and soil name	Limitations and hazards affecting cropland	Limitations and hazards affecting pastureland
871B:		
Lenzburg	---	High pH, low fertility, excess lime
871D:		
Lenzburg	---	High pH, water erosion, low fertility, excess lime
3073A:		
Ross	Flooding	Flooding
3107A:		
Sawmill	Flooding, ponding, wetness	Flooding, ponding, frost heave, wetness
3226A:		
Wirt	Flooding	Flooding
3284A:		
Tice	Flooding, wetness, poor tilth	Flooding, wetness, poor tilth
3304A:		
Landes	Flooding, excessive permeability	Flooding, excessive permeability
3424A:		
Shoals	Flooding, wetness	Flooding, wetness
3450A:		
Brouillett	Flooding, wetness, crusting	Flooding, wetness
3451A:		
Lawson	Flooding, wetness	Flooding, wetness
7132A:		
Starks	Wetness	Wetness, low pH
7373B:		
Camden	Water erosion	Low pH, water erosion
7570B:		
Martinsville	Water erosion	Low pH, water erosion

Table 7.--Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Oats	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Bu	Tons	AUM*
2A:							
Cisne---------------	3w	135	41	53	---	4.18	6.17
3A:							
Hoyleton------------	2w	132	42	52	---	4.18	6.17
13A:							
Bluford-------------	2w	122	40	50	---	3.05	4.50
13B:							
Bluford-------------	2e	120	39	49	---	3.02	4.45
48A:							
Ebbert--------------	3w	155	48	59	---	4.63	6.83
56B:							
Dana----------------	2e	160	50	61	88	5.59	8.25
56B2:							
Dana----------------	2e	154	48	59	85	5.37	7.80
132A:							
Starks--------------	1	147	46	57	76	4.63	6.83
136A:							
Brooklyn------------	2w	136	44	54	67	4.07	6.00
138A:							
Shiloh--------------	3w	158	52	62	79	4.86	7.17
148B:							
Proctor-------------	2e	164	51	62	88	5.70	8.42
149A:							
Brenton-------------	1	176	54	67	95	5.09	7.50
152A:							
Drummer-------------	2w	175	57	66	90	5.09	7.50
154A:							
Flanagan------------	1	175	56	69	92	5.31	7.83
206A:							
Thorp---------------	2w	153	50	60	79	4.60	6.80
219A:							
Millbrook-----------	1	159	50	62	84	4.75	7.00
244A:							
Hartsburg-----------	2w	164	53	61	80	4.86	7.20
291B:							
Xenia---------------	2e	145	45	57	74	4.03	5.94

See footnote at end of table.

Table 7.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Oats	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Bu	Tons	AUM*
322B:							
Russell-------------	2e	142	44	56	72	4.03	5.94
322C2:							
Russell-------------	3e	134	42	53	68	3.79	5.52
330A:							
Peotone-------------	3w	148	49	55	70	4.52	6.67
348B:							
Wingate-------------	2e	148	46	60	81	4.81	7.10
353A:							
Toronto-------------	2w	156	50	62	84	4.75	7.00
481A:							
Raub----------------	1	165	52	66	92	5.09	7.50
496A:							
Fincastle-----------	1	150	47	59	77	4.52	6.67
533:							
Urban land----------	8	---	---	---	---	---	---
570B:							
Martinsville--------	2e	139	44	56	67	4.03	5.94
570C2:							
Martinsville--------	3e	130	41	53	63	3.79	5.52
618C2:							
Senachwine----------	3e	123	40	48	59	2.94	4.29
618C3:							
Senachwine----------	3e	114	37	45	54	2.72	3.90
618D2:							
Senachwine----------	4e	115	37	45	55	2.75	3.97
618D3:							
Senachwine----------	4e	104	34	41	---	2.50	3.60
618F:							
Senachwine----------	6e	---	---	---	---	2.31	3.36
618G:							
Senachwine----------	7e	---	---	---	---	---	2.20
668B2:							
Somonauk------------	2e	140	42	54	72	4.40	6.49
722A:							
Drummer-Milford-----	2w	167	55	64	86	5.04	7.40
830.							
Landfill							
864.							
Pits, quarry							

See footnote at end of table.

Table 7.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Oats	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Bu	Tons	AUM*
865:							
Pits, gravel--------	8	---	---	---	---	---	---
871B:							
Lenzburg------------	6s	---	---	---	---	3.54	5.23
871D:							
Lenzburg------------	6s	---	---	---	---	3.07	4.50
3073A:							
Ross----------------	3w	147	48	---	---	4.37	6.45
3107A:							
Sawmill-------------	3w	153	49	---	---	4.68	6.90
3226A:							
Wirt----------------	3w	118	38	---	---	2.80	4.20
3284A:							
Tice----------------	3w	149	46	---	---	4.59	6.70
3304A:							
Landes--------------	3w	109	37	---	---	2.75	4.05
3424A:							
Shoals--------------	3w	141	44	---	---	4.28	6.30
3450A:							
Brouillett----------	3w	146	48	---	---	4.47	6.60
3451A:							
Lawson--------------	3w	154	49	---	---	4.68	6.90
7132A:							
Starks--------------	1	147	46	57	76	4.63	6.83
7373B:							
Camden--------------	2e	148	46	57	77	4.25	6.27
7570B:							
Martinsville--------	2e	139	44	56	67	4.03	5.94

* Animal unit month: The amount of forage required to feed one mature cow, of approximately 1,000 pounds weight, with or without a calf, for 30 days.

Table 8.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
2A	Cisne silt loam, 0 to 2 percent slopes (where drained)
3A	Hoyleton silt loam, 0 to 2 percent slopes
13A	Bluford silt loam, 0 to 2 percent slopes (where drained)
13B	Bluford silt loam, 2 to 5 percent slopes
48A	Ebbert silt loam, 0 to 2 percent slopes (where drained)
56B	Dana silt loam, 2 to 5 percent slopes
56B2	Dana silt loam, 2 to 5 percent slopes, eroded
132A	Starks silt loam, 0 to 2 percent slopes
136A	Brooklyn silt loam, 0 to 2 percent slopes (where drained)
138A	Shiloh silty clay loam, 0 to 2 percent slopes (where drained)
148B	Proctor silt loam, 2 to 5 percent slopes
149A	Brenton silt loam, 0 to 2 percent slopes
152A	Drummer silty clay loam, 0 to 2 percent slopes (where drained)
154A	Flanagan silt loam, 0 to 2 percent slopes
206A	Thorp silt loam, 0 to 2 percent slopes (where drained)
219A	Millbrook silt loam, 0 to 2 percent slopes
244A	Hartsburg silty clay loam, 0 to 2 percent slopes (where drained)
291B	Xenia silt loam, 2 to 5 percent slopes
322B	Russell silt loam, 2 to 5 percent slopes
330A	Peotone silty clay loam, 0 to 2 percent slopes (where drained)
348B	Wingate silt loam, 2 to 5 percent slopes
353A	Toronto silt loam, 0 to 2 percent slopes (where drained)
481A	Raub silt loam, 0 to 2 percent slopes
496A	Fincastle silt loam, 0 to 2 percent slopes
570B	Martinsville silt loam, 2 to 5 percent slopes
668B2	Somonauk silt loam, 2 to 5 percent slopes, eroded
722A	Drummer-Milford silty clay loams, 0 to 2 percent slopes (where drained)
3073A	Ross silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3107A	Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
3226A	Wirt silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3284A	Tice silty clay loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3304A	Landes fine sandy loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3424A	Shoals silt loam, 0 to 2 percent slopes, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
3450A	Brouillett silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3451A	Lawson silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
7132A	Starks silt loam, 0 to 2 percent slopes, rarely flooded
7373B	Camden silt loam, sandy substratum, 2 to 5 percent slopes, rarely flooded
7570B	Martinsville silt loam, 2 to 5 percent slopes, rarely flooded

Table 9.--Hydric Soils

(Only those map units that have hydric components are listed. See text for a description of hydric qualities and definitions of the hydric criteria codes)

Map symbol and map unit name	Component	Hydric status	Local landform	Hydric criteria
2A:				
Cisne silt loam, 0 to 2 percent slopes	Cisne	Hydric	till plain	2B3
3A:				
Hoyleton silt loam, 0 to 2 percent slopes	Hoyleton	Not hydric	till plain	---
	Cisne	Hydric	flat	2B3
13A:				
Bluford silt loam, 0 to 2 percent slopes	Bluford	Not hydric	till plain	---
	Cisne	Hydric	flat	2B3
13B:				
Bluford silt loam, 2 to 5 percent slopes	Bluford	Not hydric	till plain	---
	Cisne	Hydric	flat	2B3
48A:				
Ebbert silt loam, 0 to 2 percent slopes	Ebbert	Hydric	depression, till plain	2B3
56B:				
Dana silt loam, 2 to 5 percent slopes	Dana	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
56B2:				
Dana silt loam, 2 to 5 percent slopes, eroded	Dana	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
132A:				
Starks silt loam, 0 to 2 percent slopes	Starks	Not hydric	outwash plain, stream terrace	---
	Drummer	Hydric	swale	2B3
	Brooklyn	Hydric	depression	2B3
136A:				
Brooklyn silt loam, 0 to 2 percent slopes	Brooklyn	Hydric	outwash plain, stream terrace	2B3
138A:				
Shiloh silty clay loam, 0 to 2 percent slopes	Shiloh	Hydric	depression, till plain	2B3
148B:				
Proctor silt loam, 2 to 5 percent slopes	Proctor	Not hydric	outwash plain	---
	Drummer	Hydric	swale	2B3
149A:				
Brenton silt loam, 0 to 2 percent slopes	Brenton	Not hydric	outwash plain, stream terrace	---
	Drummer	Hydric	swale	2B3
152A:				
Drummer silty clay loam, 0 to 2 percent slopes	Drummer	Hydric	outwash plain, stream terrace	2B3
154A:				
Flanagan silt loam, 0 to 2 percent slopes	Flanagan	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3

Table 9.--Hydric Soils--Continued

Map symbol and map unit name	Component	Hydric status	Local landform	Hydric criteria
206A:				
Thorp silt loam, 0 to 2 percent slopes	Thorp	Hydric	outwash plain, ground moraine	2B3
219A:				
Millbrook silt loam, 0 to 2 percent slopes	Millbrook	Not hydric	outwash plain, outwash terrace	---
	Drummer	Hydric	swale	2B3
	Brooklyn	Hydric	depression	2B3
244A:				
Hartsburg silty clay loam, 0 to 2 percent slopes	Hartsburg	Hydric	outwash plain, ground moraine	2B3
291B:				
Xenia silt loam, 2 to 5 percent slopes	Xenia	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
322B:				
Russell silt loam, 2 to 5 percent slopes	Russell	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
322C2:				
Russell silt loam, 5 to 10 percent slopes, eroded	Russell	Not hydric	ground moraine, end moraine	---
	Drummer	Hydric	swale	2B3
330A:				
Peotone silty clay loam, 0 to 2 percent slopes	Peotone	Hydric	depression, closed depression	2B3
348B:				
Wingate silt loam, 2 to 5 percent slopes	Wingate	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
353A:				
Toronto silt loam, 0 to 2 percent slopes	Toronto	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
481A:				
Raub silt loam, 0 to 2 percent slopes	Raub	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
496A:				
Fincastle silt loam, 0 to 2 percent slopes	Fincastle	Not hydric	ground moraine	---
	Drummer	Hydric	swale	2B3
570B:				
Martinsville silt loam, 2 to 5 percent slopes	Martinsville	Not hydric	outwash terrace, outwash plain	---
	Drummer	Hydric	swale	2B3
570C2:				
Martinsville loam, 5 to 12 percent slopes, eroded	Martinsville	Not hydric	outwash terrace, outwash plain	---
	Drummer	Hydric	swale	2B3
	Sawmill	Hydric	flood plain	2B3
618C2:				
Senachwine silt loam, 5 to 10 percent slopes, eroded	Senachwine	Not hydric	ground moraine, end moraine	---
	Drummer	Hydric	swale	2B3

Table 9.--Hydric Soils--Continued

Map symbol and map unit name	Component	Hydric status	Local landform	Hydric criteria
618C3:				
Senachwine clay loam, 5 to 10 percent slopes, severely eroded	Senachwine	Not hydric	ground moraine, end moraine	---
	Drummer	Hydric	swale	2B3
618D2:				
Senachwine silt loam, 10 to 18 percent slopes, eroded	Senachwine	Not hydric	end moraine, ground moraine	---
	Drummer	Hydric	swale	2B3
	Sawmill	Hydric	flood plain	2B3
618D3:				
Senachwine clay loam, 10 to 18 percent slopes, severely eroded	Senachwine	Not hydric	end moraine, ground moraine	---
	Drummer	Hydric	swale	2B3
618F:				
Senachwine silt loam, 18 to 35 percent slopes	Senachwine	Not hydric	end moraine, ground moraine	---
	Sawmill	Hydric	flood plain	2B3
618G:				
Senachwine silt loam, 35 to 60 percent slopes	Senachwine	Not hydric	end moraine, ground moraine	---
	Sawmill	Hydric	flood plain	2B3
668B2:				
Somonauk silt loam, 2 to 5 percent slopes, eroded	Somonauk	Not hydric	stream terrace, outwash plain	---
	Drummer	Hydric	swale	2B3
722A:				
Drummer-Milford silty clay loams, 0 to 2 percent slopes	Drummer	Hydric	outwash plain	2B3
	Milford	Hydric	depression, outwash plain	2B3
3073A:				
Ross silt loam, 0 to 2 percent slopes, frequently flooded	Ross	Not hydric	flood plain, flood-plain step	---
	Sawmill	Hydric	swale	2B3
3107A:				
Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded	Sawmill	Hydric	flood plain	2B3
3226A:				
Wirt silt loam, 0 to 2 percent slopes, frequently flooded	Wirt	Not hydric	flood-plain step	---
	Sawmill	Hydric	swale	2B3
3284A:				
Tice silty clay loam, 0 to 2 percent slopes, frequently flooded	Tice	Not hydric	flood plain	---
	Sawmill	Hydric	swale	2B3
	Sawmill	Hydric	backswamp	4,3,2B3
3304A:				
Landes fine sandy loam, 0 to 2 percent slopes, frequently flooded	Landes	Not hydric	flood-plain step	---
	Sawmill	Hydric	swale	2B3
	Sawmill	Hydric	backswamp	4,2B3,3

Table 9.--Hydric Soils--Continued

Map symbol and map unit name	Component	Hydric status	Local landform	Hydric criteria
3450A:				
Brouillett silt loam, 0 to 2 percent slopes, frequently flooded	Brouillett	Not hydric	flood plain	---
	Sawmill	Hydric	swale	2B3
	Sawmill	Hydric	backswamp	2B3,3,4
3451A:				
Lawson silt loam, 0 to 2 percent slopes, frequently flooded	Lawson	Not hydric	flood plain	---
	Sawmill	Hydric	swale	2B3
	Sawmill	Hydric	backswamp	4,3,2B3
7132A:				
Starks silt loam, 0 to 2 percent slopes, rarely flooded	Starks	Not hydric	stream terrace	---
	Sawmill	Hydric	flood plain	2B3
7373B:				
Camden silt loam, sandy substratum, 2 to 5 percent slopes, rarely flooded	Camden	Not hydric	stream terrace	---
	Sawmill	Hydric	flood plain	2B3
7570B:				
Martinsville silt loam, 2 to 5 percent slopes, rarely flooded	Martinsville	Not hydric	stream terrace	---
	Sawmill	Hydric	flood plain	2B3

Table 10.--Windbreaks and Environmental Plantings

(Absence of an entry indicates that trees generally do not grow to the given height)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--			
	<8	8-15	16-25	26-35
2A:				
Cisne	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Sweetgum, red maple river birch, swamp white oak
3A:				
Hoyleton	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Sweetgum, red maple river birch, swamp white oak
13A:				
Bluford	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar	Norway spruce

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--			
	<8	8-15	16-25	26-35
13B:				
Bluford	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar	Norway spruce
48A:				
Ebbert	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Sweetgum, red maple, river birch, swamp white oak
56B:				
Dana	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, tuliptree, norther red oak, pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35
56B2:				
Dana	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, tuliptree, norther red oak, pin oak
132A:				
Starks	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum
136A:				
Brooklyn	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Sweetgum, red maple, river birch, swamp white oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--			
	<8	8-15	16-25	26-35
138A:				
Shiloh-----------------	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Sweetgum, red maple river birch, swamp white oak
148B:				
Proctor----------------	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, tuliptree, norther red oak, pin oak
149A:				
Brenton----------------	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35
152A:				
Drummer	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Sweetgum, red maple, river birch, swamp white oak
154A:				
Flanagan	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum
206A:				
Thorp	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Sweetgum, red maple, river birch, swamp white oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35
219A:				
Millbrook	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum
244A:				
Hartsburg	Common winterberry, gray dogwood, redosier dogwood	Common pawpaw, nannyberry, roughleaf dogwood, silky dogwood	Arborvitae, bur oak, common hackberry, eastern redcedar, green hawthorn	Carolina poplar, eastern cottonwood
291B:				
Xenia	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, tuliptree, norther red oak, pin oak
322B:				
Russell	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, tuliptree, norther red oak, pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--			
	<8	8-15	16-25	26-35
322C2:				
Russell	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree
330A:				
Peotone	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Sweetgum, red maple, river birch, swamp white oak
348B:				
Wingate	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, tuliptree, northern red oak, pin oak
353A:				
Toronto	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35
481A: Raub	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum
496A: Fincastle	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum
533. Urban land				
570B: Martinsville	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree
570C2: Martinsville	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--			
	<8	8-15	16-25	26-35
618C2:				
Senachwine	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree
618C3:				
Senachwine	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree
618D2:				
Senachwine	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree
618D3:				
Senachwine	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree
618F:				
Senachwine	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--			
	<8	8-15	16-25	26-35
618G:				
Senachwine	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree
668B2:				
Somonauk	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, tuliptree, norther red oak, pin oak
722A:				
Drummer	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Sweetgum, red mapl river birch, swam white oak
Milford	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Sweetgum, red mapl river birch, swam white oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--			
	<8	8-15	16-25	26-35
830. Landfill				
864. Pits, quarry				
865. Pits, gravel				
871B: Lenzburg	Coralberry, mapleleaf viburnum, redosier dogwood, roughleaf dogwood	American cranberrybush, Ohio buckeye, bitternut hickory, bur oak, chinkapin oak, cockspur hawthorn, common chokecherry, eastern redcedar	Austrian pine, common hackberry, thornless honeylocust	Carolina poplar
871D: Lenzburg	Coralberry, mapleleaf viburnum, redosier dogwood, roughleaf dogwood	American cranberrybush, Ohio buckeye, bitternut hickory, bur oak, chinkapin oak, cockspur hawthorn, common chokecherry, eastern redcedar	Austrian pine, common hackberry, thornless honeylocust	Carolina poplar
3073A: Ross	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35
3107A: Sawmill	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Sweetgum, red maple river birch, swamp white oak
3226A: Wirt	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum
3284A: Tice	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--			
	<8	8-15	16-25	26-35
3304A:				
Landes	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum
3424A:				
Shoals	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum
3450A:				
Brouillett	Common winterberry, gray dogwood, redosier dogwood, silky dogwood	Blackhaw, common pawpaw, common serviceberry, downy arrowwood, roughleaf dogwood, southern arrowwood	Austrian pine, arborvitae, bur oak, common hackberry, eastern redcedar, green hawthorn, nannyberry	Carolina poplar, eastern cottonwood
3451A:				
Lawson	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35
7132A: Starks	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, red maple, swamp white oak, sweetgum
7373B: Camden	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, tuliptree, northern red oak, pin oak
7570B: Martinsville	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, pecan	Norway spruce, common hackberry, pin oak, tuliptree

Table 11.--Forestland Productivity

(Only the soils suitable and likely to be available for production of commercial trees are listed)

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Suggested trees to plant
			cu ft/ac	
2A:				
Cisne	Bitternut hickory	---	---	Common hackberry, eastern cottonwood, pin oak, river birch, swamp white oak, sweetgum.
	Black oak	---	---	
	Pin oak	70	57	
	White oak	---	---	
3A:				
Hoyleton	Bur oak	---	---	Common hackberry, eastern cottonwood, pin oak, river birch, swamp white oak, sweetgum.
	Green ash	---	---	
	Northern red oak	70	57	
	White oak	70	57	
13A:				
Bluford	Bur oak	---	---	Black oak, bur oak, chinkapin oak, common hackberry, eastern redcedar.
	Green ash	---	---	
	Northern red oak	70	57	
	Southern red oak	70	57	
	White oak	70	57	
13B:				
Bluford	Bur oak	---	---	Black oak, bur oak, chinkapin oak, common hackberry, eastern redcedar.
	Green ash	---	---	
	Northern red oak	70	57	
	Southern red oak	70	57	
	White oak	70	57	
132A:				
Starks	Northern red oak	80	57	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	White oak	80	57	
	Black walnut	---	---	
136A:				
Brooklyn	Pin oak	80	57	Common hackberry, eastern cottonwood, pin oak, river birch, swamp white oak, sweetgum.
	White oak	---	---	
	Green ash	---	---	
	Tuliptree	---	---	
219A:				
Millbrook	White oak	80	57	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	Black walnut	---	---	
	Northern red oak	80	57	
	Tuliptree	90	86	
291B:				
Xenia	White oak	90	72	Black walnut, eastern cottonwood, eastern white pine, northern red oak, pecan, pin oak, tuliptree, white oak.
	Sweetgum	76	72	
	Tuliptree	98	100	
322B:				
Russell	Northern red oak	90	72	Black walnut, eastern cottonwood, eastern white pine, northern red oak, pecan, pin oak, tuliptree, white oak.
	Sweetgum	76	72	
	Tuliptree	96	100	
	White oak	90	72	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Suggested trees to plant
			cu ft/ac	
322C2:				
Russell	White oak	90	72	Black walnut, bur oak, eastern white pine, pecan, pin oak, tuliptree.
	Northern red oak	90	72	
	Tuliptree	96	100	
348B:				
Wingate	White oak	90	72	Black walnut, eastern cottonwood, eastern white pine, northern red oak, pecan, pin oak, tuliptree, white oak.
	Sweetgum	76	72	
	Tuliptree	98	100	
353A:				
Toronto	White oak	75	57	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	Northern red oak	75	57	
	Pin oak	85	72	
	Tuliptree	85	86	
496A:				
Fincastle	White oak	75	57	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	Northern red oak	75	57	
	Pin oak	85	72	
	Tuliptree	85	86	
570B:				
Martinsville	White oak	80	57	Black walnut, bur oak, eastern white pine, pecan, pin oak, tuliptree.
	Sweetgum	76	72	
	Tuliptree	98	100	
570C2:				
Martinsville	White oak	80	57	Black walnut, bur oak, eastern white pine, pecan, pin oak, tuliptree.
	Sweetgum	76	72	
	Tuliptree	98	100	
618C2:				
Senachwine	White oak	90	72	Black walnut, bur oak, eastern white pine, pecan, pin oak, tuliptree.
	Sweetgum	76	72	
	Tuliptree	98	100	
618C3:				
Senachwine	White oak	90	72	Black walnut, bur oak, eastern white pine, pecan, pin oak, tuliptree.
	Sweetgum	76	72	
	Tuliptree	98	100	
618D2:				
Senachwine	White oak	90	72	Black walnut, bur oak, eastern white pine, pecan, pin oak, tuliptree.
	Sweetgum	76	72	
	Tuliptree	98	100	
618D3:				
Senachwine	White oak	90	72	Black walnut, bur oak, eastern white pine, pecan, pin oak, tuliptree.
	Sweetgum	76	72	
	Tuliptree	98	100	
618F:				
Senachwine	White oak	90	72	Black walnut, bur oak, eastern white pine, pecan, pin oak, tuliptree.
	Sweetgum	76	72	
	Tuliptree	98	100	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Suggested trees to plant
			cu ft/ac	
618G:				
Senachwine	White oak	90	72	Bur oak, eastern white pine, pecan, pin oak, tuliptree.
	Sweetgum	76	72	
	Tuliptree	98	100	
668B2:				
Somonauk	White oak	85	72	Black walnut, eastern cottonwood, eastern white pine, northern red oak, pecan, pin oak, tuliptree, white oak.
	Green ash	76	72	
	Northern red oak	85	72	
	Sweetgum	80	86	
	Tuliptree	95	100	
871B:				
Lenzburg	Black walnut	73	---	Austrian pine, blue spruce, bur oak, chinkapin oak, common hackberry, eastern cottonwood.
	Eastern cottonwood	---	---	
	Sweetgum	76	72	
871D:				
Lenzburg	Black walnut	73	---	Black walnut, eastern cottonwood, eastern white pine, northern red oak, pecan, pin oak, tuliptree, white oak.
	Eastern cottonwood	---	---	
	Sweetgum	76	72	
3073A:				
Ross	Black cherry	---	---	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	Black walnut	---	---	
	Northern red oak	86	72	
	Sugar maple	85	57	
	Tuliptree	96	100	
	White ash	---	---	
	White oak	---	---	
3107A:				
Sawmill	Pin oak	90	72	Common hackberry, eastern cottonwood, pin oak, river birch, swamp white oak, sweetgum.
	American sycamore	---	---	
	Eastern cottonwood	---	---	
	Sweetgum	---	---	
3226A:				
Wirt	Tuliptree	105	114	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
3284A:				
Tice	Pin oak	96	72	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	Eastern cottonwood	---	---	
	Sweetgum	86	100	
	Tuliptree	90	86	
	White ash	---	---	
3304A:				
Landes	American sycamore	---	---	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	Eastern cottonwood	105	143	
	Green ash	---	---	
	Sweetgum	---	---	
	Tuliptree	95	100	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Suggested trees to plant
			cu ft/ac	
3424A:				
Shoals	Pin oak	90	72	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	Tuliptree	90	86	
	Eastern cottonwood	---	---	
	White ash	---	---	
3450A:				
Brouillett	Red maple	---	---	Bur oak, common hackberry, eastern cottonwood, eastern redcedar.
	Silver maple	70	29	
	White ash	---	---	
3451A:				
Lawson	White ash	---	---	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	Red maple	---	---	
	Silver maple	70	29	
7132A:				
Starks	Northern red oak	80	57	Common hackberry, common persimmon, eastern cottonwood, pecan, pin oak, swamp white oak.
	White oak	80	57	
	Black walnut	---	---	
7373B:				
Camden	White oak	85	72	Black walnut, eastern cottonwood, eastern white pine, northern red oak, pecan, pin oak, tuliptree, white oak.
	Green ash	76	72	
	Northern red oak	85	72	
	Sweetgum	80	86	
	Tuliptree	95	100	
7570B:				
Martinsville	White oak	80	57	Black walnut, bur oak, eastern white pine, pecan, pin oak, tuliptree.
	Sweetgum	76	72	
	Tuliptree	98	100	

Table 12a.--Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
2A:						
Cisne	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Slow water movement	0.98	Slow water movement	0.98	Slow water movement	0.98
3A:						
Hoyleton	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.88	Depth to saturated zone	0.56	Depth to saturated zone	0.88
	Slow water movement	0.43	Slow water movement	0.43	Slow water movement	0.43
13A:						
Bluford	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Slow water movement	0.96	Depth to saturated zone	1.00
	Slow water movement	0.96	Depth to saturated zone	0.94	Slow water movement	0.96
13B:						
Bluford	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Slow water movement	0.96	Depth to saturated zone	1.00
	Slow water movement	0.96	Depth to saturated zone	0.94	Slow water movement	0.96
					Slope	0.12
48A:						
Ebbert	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Slow water movement	0.96	Slow water movement	0.96	Slow water movement	0.96
56B:						
Dana	Not limited		Not limited		Somewhat limited	
					Slope	0.50
56B2:						
Dana	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.07	Depth to saturated zone	0.03	Slope	0.50
					Depth to saturated zone	0.07
132A:						
Starks	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.81	Depth to saturated zone	0.48	Depth to saturated zone	0.81
	Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21

Table 12a.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
136A:						
Brooklyn	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Slow water movement	0.96	Slow water movement	0.96	Slow water movement	0.96
138A:						
Shiloh	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
148B:						
Proctor	Not limited		Not limited		Somewhat limited	
					Slope	0.50
149A:						
Brenton	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
152A:						
Drummer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
154A:						
Flanagan	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
206A:						
Thorp	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Slow water movement	0.96	Slow water movement	0.96	Slow water movement	0.96
219A:						
Millbrook	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
244A:						
Hartsburg	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00

Table 12a.--Recreational Development--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
291B:						
Xenia	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
					Slope	0.50
322B:						
Russell	Somewhat limited		Somewhat limited		Somewhat limited	
	Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
					Slope	0.12
322C2:						
Russell	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.01	Slope	0.01	Slope	1.00
330A:						
Peotone	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
348B:						
Wingate	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.07	Depth to saturated zone	0.03	Slope	0.50
					Depth to saturated zone	0.07
353A:						
Toronto	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
481A:						
Raub	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
496A:						
Fincastle	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
533:						
Urban land	Not rated		Not rated		Not rated	
570B:						
Martinsville	Not limited		Not limited		Somewhat limited	
					Slope	0.50
570C2:						
Martinsville	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.01	Slope	0.01	Slope	1.00

Table 12a.--Recreational Development--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
618C2:						
Senachwine----------	Somewhat limited		Somewhat limited		Very limited	
	Slow water movement	0.21	Slow water movement	0.21	Slope	1.00
	Slope	0.01	Slope	0.01	Slow water movement	0.21
618C3:						
Senachwine----------	Somewhat limited		Somewhat limited		Very limited	
	Slow water movement	0.21	Slow water movement	0.21	Slope	1.00
	Slope	0.01	Slope	0.01	Slow water movement	0.21
618D2:						
Senachwine----------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
618D3:						
Senachwine----------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
618F:						
Senachwine----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
618G:						
Senachwine----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
668B2:						
Somonauk------------	Not limited		Not limited		Somewhat limited	
					Slope	0.12
722A:						
Drummer-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
Milford-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
830:						
Landfill------------	Not rated		Not rated		Not rated	
864:						
Pits, quarry--------	Not rated		Not rated		Not rated	
865:						
Pits, gravel--------	Not rated		Not rated		Not rated	

Table 12a.--Recreational Development--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
871B:						
Lenzburg	Not limited		Not limited		Somewhat limited	
					Gravel content	0.87
					Slope	0.12
871D:						
Lenzburg	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.16	Slope	0.16	Slope	1.00
					Gravel content	0.01
3073A:						
Ross	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
3107A:						
Sawmill	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00
3226A:						
Wirt	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
3284A:						
Tice	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Depth to saturated zone	0.48	Flooding	1.00
	Depth to saturated zone	0.81	Flooding	0.40	Depth to saturated zone	0.81
3304A:						
Landes	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
3424A:						
Shoals	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.40	Flooding	1.00
3450A:						
Brouillett	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
	Depth to saturated zone	0.44	Depth to saturated zone	0.22	Depth to saturated zone	0.44
3451A:						
Lawson	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
7132A:						
Starks	Very limited		Somewhat limited		Somewhat limited	
	Flooding	1.00	Depth to saturated zone	0.48	Depth to saturated zone	0.81
	Depth to saturated zone	0.81	Slow water movement	0.21	Slow water movement	0.21
	Slow water movement	0.21				

Table 12a.--Recreational Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7373B:						
Camden-------------	Very limited		Somewhat limited		Somewhat limited	
	Flooding	1.00	Slow water movement	0.21	Slope	0.28
	Slow water movement	0.21			Slow water movement	0.21
7570B:						
Martinsville--------	Very limited		Not limited		Somewhat limited	
	Flooding	1.00			Slope	0.50

Table 12b.--Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2A:						
Cisne	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
3A:						
Hoyleton	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.18	Depth to saturated zone	0.18	Depth to saturated zone	0.56
13A:						
Bluford	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
13B:						
Bluford	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
48A:						
Ebbert	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
56B:						
Dana	Not limited		Not limited		Not limited	
56B2:						
Dana	Not limited		Not limited		Somewhat limited	
					Depth to saturated zone	0.03
132A:						
Starks	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
136A:						
Brooklyn	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
138A:						
Shiloh	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
148B:						
Proctor	Not limited		Not limited		Not limited	

Table 12b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Paths and trails: Value	Off-road motorcycle trails: Rating class and limiting features	Off-road motorcycle trails: Value	Golf fairways: Rating class and limiting features	Golf fairways: Value
149A: Brenton	Somewhat limited Depth to saturated zone	 0.44	Somewhat limited Depth to saturated zone	 0.44	Somewhat limited Depth to saturated zone	 0.75
152A: Drummer	Very limited Depth to saturated zone Ponding	 1.00 1.00	Very limited Depth to saturated zone Ponding	 1.00 1.00	Very limited Ponding Depth to saturated zone	 1.00 1.00
154A: Flanagan	Somewhat limited Depth to saturated zone	 0.44	Somewhat limited Depth to saturated zone	 0.44	Somewhat limited Depth to saturated zone	 0.75
206A: Thorp	Very limited Depth to saturated zone Ponding	 1.00 1.00	Very limited Depth to saturated zone Ponding	 1.00 1.00	Very limited Ponding Depth to saturated zone	 1.00 1.00
219A: Millbrook	Somewhat limited Depth to saturated zone	 0.44	Somewhat limited Depth to saturated zone	 0.44	Somewhat limited Depth to saturated zone	 0.75
244A: Hartsburg	Very limited Depth to saturated zone Ponding	 1.00 1.00	Very limited Depth to saturated zone Ponding	 1.00 1.00	Very limited Ponding Depth to saturated zone saturated zone	 1.00 1.00
291B: Xenia	Somewhat limited Depth to saturated zone	 0.44	Somewhat limited Depth to saturated zone	 0.44	Somewhat limited Depth to saturated zone	 0.75
322B: Russell	Not limited		Not limited		Not limited	
322C2: Russell	Not limited		Not limited		Somewhat limited Slope	 0.01
330A: Peotone	Very limited Depth to saturated zone Ponding	 1.00 1.00	Very limited Depth to saturated zone Ponding	 1.00 1.00	Very limited Ponding Depth to saturated zone	 1.00 1.00
348B: Wingate	Not limited		Not limited		Somewhat limited Depth to saturated zone	 0.03

Table 12b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
353A:						
Toronto	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
481A:						
Raub	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
496A:						
Fincastle	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
533:						
Urban land	Not rated		Not rated		Not rated	
570B:						
Martinsville	Not limited		Not limited		Not limited	
570C2:						
Martinsville	Not limited		Not limited		Somewhat limited	
					Slope	0.01
618C2:						
Senachwine	Not limited		Not limited		Somewhat limited	
					Slope	0.01
618C3:						
Senachwine	Not limited		Not limited		Somewhat limited	
					Slope	0.01
618D2:						
Senachwine	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
618D3:						
Senachwine	Not limited		Not limited		Somewhat limited	
					Slope	0.96
618F:						
Senachwine	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.04		
618G:						
Senachwine	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Slope	1.00
	Water erosion	1.00	Slope	1.00		
668B2:						
Somonauk	Not limited		Not limited		Not limited	
722A:						
Drummer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00

Table 12b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
722A:						
Milford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
830:						
Landfill	Not rated		Not rated		Not rated	
864:						
Pits, quarry	Not rated		Not rated		Not rated	
865:						
Pits, gravel	Not rated		Not rated		Not rated	
871B:						
Lenzburg	Not limited		Not limited		Very limited	
					Droughty	1.00
					Content of large stones	0.16
871D:						
Lenzburg	Not limited		Not limited		Very limited	
					Droughty	1.00
					Slope	0.16
					Content of large stones	0.01
3073A:						
Ross	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
3107A:						
Sawmill	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
3226A:						
Wirt	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
3284A:						
Tice	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
	Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
3304A:						
Landes	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
3424A:						
Shoals	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.94

Table 12b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Paths and trails: Value	Off-road motorcycle trails: Rating class and limiting features	Off-road motorcycle trails: Value	Golf fairways: Rating class and limiting features	Golf fairways: Value
3450A:						
Brouillett----------	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
					Depth to saturated zone	0.22
3451A:						
Lawson-------------	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
7132A:						
Starks-------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
7373B:						
Camden-------------	Not limited		Not limited		Not limited	
7570B:						
Martinsville--------	Not limited		Not limited		Not limited	

Table 13.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
2A: Cisne	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
3A: Hoyleton	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
13A: Bluford	Fair	Good	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
13B: Bluford	Fair	Good	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
48A: Ebbert	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
56B: Dana	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
56B2: Dana	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
132A: Starks	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
136A: Brooklyn	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
138A: Shiloh	Poor	Poor	Poor	Poor	Very poor.	Good	Good	Poor	Poor	Good.
148B: Proctor	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
149A: Brenton	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
152A: Drummer	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
154A: Flanagan	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
206A: Thorp	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
219A: Millbrook	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
244A: Hartsburg	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
291B:										
Xenia	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
322B:										
Russell	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
322C2:										
Russell	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
330A:										
Peotone	Poor	Poor	Poor	Poor	Very poor.	Good	Good	Poor	Poor	Good.
348B:										
Wingate	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
353A:										
Toronto	Fair	Good	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
481A:										
Raub	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
496A:										
Fincastle	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
533. Urban land										
570B:										
Martinsville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
570C2:										
Martinsville	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
618C2:										
Senachwine	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
618C3:										
Senachwine	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
618D2:										
Senachwine	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
618D3:										
Senachwine	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
618F:										
Senachwine	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
618G:										
Senachwine	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
668B2:										
Somonauk	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
722A:										
Drummer	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
Milford	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
830. Landfill										
864. Pits, quarry										
865. Pits, gravel										
871B:										
Lenzburg	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
871D:										
Lenzburg	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
3073A:										
Ross	Poor	Fair	Fair	Good	Fair	Fair	Very poor.	Fair	Good	Poor.
3107A:										
Sawmill	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
3226A:										
Wirt	Poor	Fair	Fair	Good	Fair	Fair	Very poor.	Fair	Good	Poor.
3284A:										
Tice	Poor	Fair	Fair	Good	Fair	Good	Fair	Fair	Good	Fair.
3304A:										
Landes	Poor	Fair	Fair	Good	Fair	Fair	Very poor.	Fair	Good	Poor.
3424A:										
Shoals	Poor	Fair	Fair	Good	Fair	Good	Fair	Fair	Good	Fair.
3450A:										
Brouillett	Poor	Fair	Fair	Good	Fair	Good	Fair	Fair	Good	Fair.
3451A:										
Lawson	Poor	Fair	Fair	Good	Fair	Good	Fair	Fair	Good	Fair.
7132A:										
Starks	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.

Table 13.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hardwood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
7373B:										
Camden	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
7570B:										
Martinsville	Good	Good	Good	Good	Good	Poor	Very	Good	Good	Very poor.

Table 14a.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
2A:						
Cisne	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	0.01	Shrink-swell	1.00
3A:						
Hoyleton	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.88			Depth to saturated zone	0.88
13A:						
Bluford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00			Shrink-swell	1.00
13B:						
Bluford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00			Shrink-swell	1.00
48A:						
Ebbert	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.73	Shrink-swell	0.73	Shrink-swell	0.73
56B:						
Dana	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Shrink-swell	0.50		
56B2:						
Dana	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.07	Shrink-swell	0.50	Depth to saturated zone	0.07
132A:						
Starks	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.81	Depth to saturated zone	1.00	Depth to saturated zone	0.81
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
136A:						
Brooklyn	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
138A:						
Shiloh	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
148B:						
Proctor	Not limited		Not limited		Not limited	
149A:						
Brenton	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
152A:						
Drummer	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
154A:						
Flanagan	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.98	Shrink-swell	1.00	Depth to saturated zone	0.98
206A:						
Thorp	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
219A:						
Millbrook	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.68	Shrink-swell	0.68	Shrink-swell	0.68
244A:						
Hartsburg	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
291B:						
Xenia	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
322B:						
Russell-------------	Somewhat limited		Not limited		Somewhat limited	
	Shrink-swell	0.50			Shrink-swell	0.50
322C2:						
Russell-------------	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
	Slope	0.01	Slope	0.01	Shrink-swell	0.50
330A:						
Peotone-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
348B:						
Wingate-------------	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.07	Shrink-swell	0.50	Depth to saturated zone	0.07
353A:						
Toronto-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
481A:						
Raub----------------	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.50			Shrink-swell	0.50
496A:						
Fincastle-----------	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
533:						
Urban land----------	Not rated		Not rated		Not rated	
570B:						
Martinsville--------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.01	Shrink-swell	0.01	Shrink-swell	0.01
570C2:						
Martinsville--------	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.01	Shrink-swell	0.01	Slope	1.00
	Slope	0.01	Slope	0.01	Shrink-swell	0.01
618C2:						
Senachwine----------	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Slope	0.01	Slope	1.00
	Slope	0.01			Shrink-swell	0.50
618C3:						
Senachwine----------	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Slope	0.01	Slope	1.00
	Slope	0.01			Shrink-swell	0.50

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
618D2:						
Senachwine----------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
618D3:						
Senachwine----------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
618F:						
Senachwine----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
618G:						
Senachwine----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
668B2:						
Somonauk------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Shrink-swell	0.50		
722A:						
Drummer-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Milford-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
830:						
Landfill------------	Not rated		Not rated		Not rated	
864:						
Pits, quarry--------	Not rated		Not rated		Not rated	
865:						
Pits, gravel--------	Not rated		Not rated		Not rated	
871B:						
Lenzburg------------	Not limited		Not limited		Not limited	
871D:						
Lenzburg------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.16	Slope	0.16	Slope	1.00
3073A:						
Ross----------------	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.35		

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
3107A:						
Sawmill	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
3226A:						
Wirt	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
3284A:						
Tice	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.81	Depth to saturated zone	1.00	Depth to saturated zone	0.81
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
3304A:						
Landes	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
3424A:						
Shoals	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
3450A:						
Brouillett	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.44	Depth to saturated zone	1.00	Depth to saturated zone	0.44
3451A:						
Lawson	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.99		
7132A:						
Starks	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.81	Depth to saturated zone	1.00	Depth to saturated zone	0.81
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
7373B:						
Camden	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.16	Shrink-swell	0.50
7570B:						
Martinsville	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Shrink-swell	0.01	Shrink-swell	0.01	Shrink-swell	0.01

Table 14b.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
2A:						
Cisne	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	1.00				
3A:						
Hoyleton	Very limited		Very limited		Somewhat limited	
	Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.56
	Shrink-swell	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.56				
	Frost action	0.50				
13A:						
Bluford	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00	Too clayey	0.01		
	Depth to saturated zone	0.94				
13B:						
Bluford	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00	Too clayey	0.01		
	Depth to saturated zone	0.94				
48A:						
Ebbert	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.73				
56B:						
Dana	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.99		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
56B2:						
Dana	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Depth to saturated zone	0.03				

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
132A:						
Starks	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.48
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Depth to saturated zone	0.48				
136A:						
Brooklyn	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00	Too clayey	0.01		
	Shrink-swell	1.00				
138A:						
Shiloh	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00	Too clayey	0.02		
	Shrink-swell	1.00				
148B:						
Proctor	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
149A:						
Brenton	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.50		
	Depth to saturated zone	0.75				
	Shrink-swell	0.50				
152A:						
Drummer	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
154A:						
Flanagan	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00				
	Depth to saturated zone	0.75				

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
206A:						
Thorp	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	1.00		
	Low strength	1.00				
	Shrink-swell	0.50				
219A:						
Millbrook	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.75				
	Shrink-swell	0.68				
244A:						
Hartsburg	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
291B:						
Xenia	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Dense layer	0.50		
	Depth to saturated zone	0.75	Cutbanks cave	0.10		
	Shrink-swell	0.50				
322B:						
Russell	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Dense layer	0.50		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
322C2:						
Russell	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Cutbanks cave	0.10	Slope	0.01
	Low strength	1.00	Slope	0.01		
	Shrink-swell	0.50				
	Slope	0.01				
330A:						
Peotone	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	1.00				

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
348B:						
Wingate	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
	Low strength	1.00	Dense layer	0.50		
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Depth to saturated zone	0.03				
353A:						
Toronto	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Dense layer	0.50		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
481A:						
Raub	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.75				
	Shrink-swell	0.50				
496A:						
Fincastle	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Dense layer	0.50		
	Depth to saturated zone	0.75	Cutbanks cave	0.10		
	Shrink-swell	0.50				
533:						
Urban land	Not rated		Not rated		Not rated	
570B:						
Martinsville	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
	Shrink-swell	0.01				
570C2:						
Martinsville	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Slope	0.01
	Shrink-swell	0.01	Slope	0.01		
	Slope	0.01				
618C2:						
Senachwine	Very limited		Somewhat limited		Somewhat limited	
	Low strength	1.00	Cutbanks cave	0.10	Slope	0.01
	Shrink-swell	0.50	Slope	0.01		
	Frost action	0.50				
	Slope	0.01				
618C3:						
Senachwine	Very limited		Somewhat limited		Somewhat limited	
	Low strength	1.00	Cutbanks cave	0.10	Slope	0.01
	Shrink-swell	0.50	Slope	0.01		
	Frost action	0.50				
	Slope	0.01				

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
618D2:						
Senachwine----------	Very limited		Somewhat limited		Somewhat limited	
	Low strength	1.00	Slope	0.96	Slope	0.96
	Slope	0.96	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
618D3:						
Senachwine----------	Very limited		Somewhat limited		Somewhat limited	
	Low strength	1.00	Slope	0.96	Slope	0.96
	Slope	0.96	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
618F:						
Senachwine----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
618G:						
Senachwine----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
668B2:						
Somonauk------------	Very limited		Very limited		Not limited	
	Frost action	1.00	Cutbanks cave	1.00		
	Low strength	1.00	Depth to saturated zone	0.99		
	Shrink-swell	0.50				
722A:						
Drummer-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
Milford-------------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00	Too clayey	0.02		
	Shrink-swell	0.50				
830:						
Landfill------------	Not rated		Not rated		Not rated	
864:						
Pits, quarry--------	Not rated		Not rated		Not rated	
865:						
Pits, gravel--------	Not rated		Not rated		Not rated	

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
871B:						
Lenzburg	Somewhat limited		Somewhat limited		Very limited	
	Frost action	0.50	Cutbanks cave	0.10	Droughty	1.00
					Content of large stones	0.16
871D:						
Lenzburg	Somewhat limited		Somewhat limited		Very limited	
	Frost action	0.50	Slope	0.16	Droughty	1.00
	Slope	0.16	Cutbanks cave	0.10	Slope	0.16
					Content of large stones	0.01
3073A:						
Ross	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.80	Flooding	1.00
	Frost action	0.50	Depth to saturated zone	0.35		
			Cutbanks cave	0.10		
3107A:						
Sawmill	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
3226A:						
Wirt	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.80	Flooding	1.00
	Frost action	0.50	Cutbanks cave	0.10		
3284A:						
Tice	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	1.00	Flooding	0.80	Depth to saturated zone	0.48
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Depth to saturated zone	0.48				
3304A:						
Landes	Very limited		Very limited		Very limited	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
	Frost action	0.50	Flooding	0.80		
3424A:						
Shoals	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	1.00	Flooding	0.80	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.94				

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
3450A:						
Brouillett	Very limited		Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	0.50	Flooding	0.80	Depth to saturated zone	0.22
	Depth to saturated zone	0.22	Cutbanks cave	0.10		
3451A:						
Lawson	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	0.99	Flooding	1.00
	Flooding	1.00	Flooding	0.80		
	Low strength	1.00	Cutbanks cave	0.10		
7132A:						
Starks	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.48
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Depth to saturated zone	0.48				
	Flooding	0.40				
7373B:						
Camden	Very limited		Very limited		Not limited	
	Frost action	1.00	Cutbanks cave	1.00		
	Low strength	1.00	Depth to saturated zone	0.16		
	Shrink-swell	0.50				
	Flooding	0.40				
7570B:						
Martinsville	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
	Flooding	0.40				
	Shrink-swell	0.01				

Table 15a.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
2A:				
Cisne	Very limited		Very limited	
	Slow water movement	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
3A:				
Hoyleton	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00		
13A:				
Bluford	Very limited		Very limited	
	Slow water movement	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
13B:				
Bluford	Very limited		Very limited	
	Slow water movement	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	0.08
48A:				
Ebbert	Very limited		Very limited	
	Slow water movement	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	0.53
56B:				
Dana	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
	Slow water movement	1.00	Slope	0.32
			Depth to saturated zone	0.04
56B2:				
Dana	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
	Slow water movement	1.00	Depth to saturated zone	0.44
			Slope	0.32

Table 15a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
132A:				
Starks	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53
136A:				
Brooklyn	Very limited		Very limited	
	Slow water movement	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
138A:				
Shiloh	Very limited		Very limited	
	Slow water movement	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
148B:				
Proctor	Very limited		Very limited	
	Seepage, bottom layer	1.00	Seepage	1.00
	Slow water movement	0.46	Slope	0.32
149A:				
Brenton	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53
152A:				
Drummer	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53
154A:				
Flanagan	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Seepage	0.53
206A:				
Thorp	Very limited		Very limited	
	Slow water movement	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00		

Table 15a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
219A:				
Millbrook-----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53
244A:				
Hartsburg-----------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53
291B:				
Xenia---------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Seepage	0.53
			Slope	0.32
322B:				
Russell-------------	Very limited		Somewhat limited	
	Slow water movement	1.00	Seepage	0.53
			Slope	0.08
322C2:				
Russell-------------	Very limited		Very limited	
	Slow water movement	1.00	Slope	1.00
	Slope	0.01	Seepage	0.53
330A:				
Peotone-------------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00		
348B:				
Wingate-------------	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
	Slow water movement	1.00	Depth to saturated zone	0.44
			Slope	0.32
353A:				
Toronto-------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Seepage	0.53
481A:				
Raub----------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Seepage	0.53

Table 15a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
496A:				
Fincastle	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Seepage	0.53
533:				
Urban land	Not rated		Not rated	
570B:				
Martinsville	Very limited		Somewhat limited	
	Seepage, bottom layer	1.00	Seepage	0.53
	Slow water movement	0.46	Slope	0.32
570C2:				
Martinsville	Very limited		Very limited	
	Seepage, bottom layer	1.00	Slope	1.00
	Slow water movement	0.46	Seepage	0.53
	Slope	0.01		
618C2:				
Senachwine	Very limited		Very limited	
	Slow water movement	1.00	Slope	1.00
	Slope	0.01	Seepage	0.53
618C3:				
Senachwine	Very limited		Very limited	
	Slow water movement	1.00	Slope	1.00
	Slope	0.01	Seepage	0.53
618D2:				
Senachwine	Very limited		Very limited	
	Slow water movement	1.00	Slope	1.00
	Slope	0.96	Seepage	0.53
618D3:				
Senachwine	Very limited		Very limited	
	Slow water movement	1.00	Slope	1.00
	Slope	0.96	Seepage	0.53
618F:				
Senachwine	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Slow water movement	1.00	Seepage	0.53
618G:				
Senachwine	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Slow water movement	1.00	Seepage	0.53

Table 15a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
668B2:				
Somonauk	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage, bottom layer	1.00	Seepage	0.53
	Slow water movement	0.46	Slope	0.08
722A:				
Drummer	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53
Milford	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	1.00	Seepage	0.53
830:				
Landfill	Not rated		Not rated	
864:				
Pits, quarry	Not rated		Not rated	
865:				
Pits, gravel	Not rated		Not rated	
871B:				
Lenzburg	Not limited		Somewhat limited	
			Slope	0.08
871D:				
Lenzburg	Somewhat limited		Very limited	
	Slope	0.16	Slope	1.00
3073A:				
Ross	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Seepage, bottom layer	1.00	Seepage	1.00
	Depth to saturated zone	0.84	Depth to saturated zone	0.17
	Slow water movement	0.46		
3107A:				
Sawmill	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53

Table 15a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
3226A:				
Wirt	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Seepage, bottom layer	1.00	Seepage	1.00
	Slow water movement	0.46		
3284A:				
Tice	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53
3304A:				
Landes	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Seepage, bottom layer	1.00	Seepage	1.00
3424A:				
Shoals	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53
3450A:				
Brouillett	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage, bottom layer	1.00	Seepage	1.00
	Slow water movement	0.46		
3451A:				
Lawson	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Seepage	0.53
7132A:				
Starks	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Depth to saturated zone	1.00
	Slow water movement	0.46	Flooding	0.40
	Flooding	0.40		

Table 15a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
7373B:				
Camden--------------	Very limited		Very limited	
	Seepage, bottom layer	1.00	Seepage	1.00
	Slow water movement	0.46	Flooding	0.40
	Depth to saturated zone	0.43	Slope	0.18
	Flooding	0.40		
7570B:				
Martinsville--------	Very limited		Somewhat limited	
	Seepage, bottom layer	1.00	Seepage	0.53
	Slow water movement	0.46	Flooding	0.40
	Flooding	0.40	Slope	0.32

Table 15b.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2A:						
Cisne	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
3A:						
Hoyleton	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.98
					Too clayey	0.50
13A:						
Bluford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
13B:						
Bluford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
48A:						
Ebbert	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
56B:						
Dana	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.68	Depth to saturated zone	0.04	Too clayey	0.50
	Too clayey	0.50			Depth to saturated zone	0.24
56B2:						
Dana	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.95	Depth to saturated zone	0.44	Depth to saturated zone	0.68
	Too clayey	0.50			Too clayey	0.50
132A:						
Starks	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
	Too clayey	0.50			Too clayey	0.50

Table 15b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
136A:						
Brooklyn	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00			Too clayey	1.00
					Hard to compact	1.00
138A:						
Shiloh	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00			Too clayey	1.00
					Hard to compact	1.00
148B:						
Proctor	Very limited		Not limited		Not limited	
	Seepage, bottom layer	1.00				
149A:						
Brenton	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
152A:						
Drummer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
154A:						
Flanagan	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
206A:						
Thorp	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage, bottom layer	1.00			Too clayey	0.50
	Too clayey	0.50				
219A:						
Millbrook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
244A:						
Hartsburg	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 15b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
291B:						
Xenia	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
322B:						
Russell	Not limited		Not limited		Somewhat limited	
					Too clayey	0.50
322C2:						
Russell	Somewhat limited		Somewhat limited		Somewhat limited	
	Too clayey	0.50	Slope	0.01	Too clayey	0.50
	Slope	0.01			Slope	0.01
330A:						
Peotone	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Hard to compact	1.00
					Too clayey	0.50
348B:						
Wingate	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.95	Depth to saturated zone	0.44	Depth to saturated zone	0.68
	Too clayey	0.50			Too clayey	0.50
353A:						
Toronto	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
481A:						
Raub	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Too clayey	0.50
496A:						
Fincastle	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
533:						
Urban land	Not rated		Not rated		Not rated	
570B:						
Martinsville	Very limited		Not limited		Somewhat limited	
	Seepage, bottom layer	1.00			Too clayey	0.50
	Too clayey	0.50				

Table 15b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
570C2:						
Martinsville	Very limited		Somewhat limited		Somewhat limited	
	Seepage, bottom layer	1.00	Slope	0.01	Too clayey	0.50
	Too clayey	0.50			Slope	0.01
	Slope	0.01				
618C2:						
Senachwine	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01	Slope	0.01
618C3:						
Senachwine	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01	Slope	0.01
618D2:						
Senachwine	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	0.96	Slope	0.96
618D3:						
Senachwine	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	0.96	Slope	0.96
618F:						
Senachwine	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
618G:						
Senachwine	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
668B2:						
Somonauk	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Seepage, bottom layer	1.00			Depth to saturated zone	0.24
	Too clayey	0.50				
722A:						
Drummer	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
Milford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Too clayey	0.50
830:						
Landfill	Not rated		Not limited		Not rated	
864:						
Pits, quarry	Not rated		Not rated		Not rated	
865:						
Pits, gravel	Not rated		Not rated		Not rated	

Table 15b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
871B:						
Lenzburg	Not limited		Not limited		Not limited	
871D:						
Lenzburg	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.16	Slope	0.16	Slope	0.16
3073A:						
Ross	Very limited		Very limited		Not limited	
	Flooding	1.00	Flooding	1.00		
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
	Seepage, bottom layer	1.00				
3107A:						
Sawmill	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Too clayey	0.50				
3226A:						
Wirt	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Seepage	0.22
	Seepage, bottom layer	1.00	Seepage	1.00		
3284A:						
Tice	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.96
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Too clayey	0.50				
3304A:						
Landes	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Too sandy	1.00
	Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00				
3424A:						
Shoals	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
3450A:						
Brouillett	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.88
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.22
	Seepage, bottom layer	1.00				

Table 15b.--Sanitary Facilities--Continued

Map symbol and soil name	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3451A:						
Lawson--------------	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.47
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
7132A:						
Starks--------------	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
	Seepage, bottom layer	1.00	Seepage	1.00	Too clayey	0.50
	Too clayey	0.50	Flooding	0.40		
	Flooding	0.40				
7373B:						
Camden--------------	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Seepage, bottom layer	1.00	Flooding	0.40	Seepage	0.22
	Flooding	0.40				
7570B:						
Martinsville--------	Very limited		Somewhat limited		Somewhat limited	
	Seepage, bottom layer	1.00	Flooding	0.40	Too clayey	0.50
	Too clayey	0.50				
	Flooding	0.40				

Table 16a.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table)

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
2A:				
Cisne-------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3A:				
Hoyleton----------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
13A:				
Bluford-----------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
13B:				
Bluford-----------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
48A:				
Ebbert------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
56B:				
Dana--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
56B2:				
Dana--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
132A:				
Starks------------	Poor		Poor	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.00
136A:				
Brooklyn----------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
138A:				
Shiloh------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Table 16a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
148B:				
Proctor	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
149A:				
Brenton	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
152A:				
Drummer	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
154A:				
Flanagan	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
206A:				
Thorp	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
219A:				
Millbrook	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
244A:				
Hartsburg	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
291B:				
Xenia	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
322B:				
Russell	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
322C2:				
Russell	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
330A:				
Peotone	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
348B:				
Wingate	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Table 16a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
353A:				
Toronto-----------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
481A:				
Raub--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
496A:				
Fincastle---------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
533:				
Urban land--------	Not rated		Not rated	
570B:				
Martinsville------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
570C2:				
Martinsville------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
618C2:				
Senachwine--------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
618C3:				
Senachwine--------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
618D2:				
Senachwine--------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
618D3:				
Senachwine--------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
618F:				
Senachwine--------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
618G:				
Senachwine--------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Table 16a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
668B2:				
Somonauk----------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
722A:				
Drummer-----------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.01
Milford-----------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
830:				
Landfill----------	Not rated		Not rated	
864:				
Pits, quarry------	Not rated		Not rated	
865:				
Pits, gravel------	Not rated		Not rated	
871B:				
Lenzburg----------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
871D:				
Lenzburg----------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3073A:				
Ross--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3107A:				
Sawmill-----------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3226A:				
Wirt--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3284A:				
Tice--------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3304A:				
Landes------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.07

Table 16a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
3424A:				
Shoals------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3450A:				
Brouillett--------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
3451A:				
Lawson------------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
7132A:				
Starks------------	Poor		Poor	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.00
7373B:				
Camden------------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.03
	Thickest layer	0.00	Bottom layer	0.10
7570B:				
Martinsville------	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Table 16b.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2A:						
Cisne---------------	Fair		Poor		Poor	
	Water erosion	0.06	Wetness	0.00	Wetness	0.00
	Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.20
	Too clayey	0.32	Shrink-swell	0.93	Too acid	0.95
	Too acid	0.46				
3A:						
Hoyleton------------	Fair		Poor		Fair	
	Too clayey	0.02	Low strength	0.00	Too clayey	0.01
	Low content of organic matter	0.02	Wetness	0.24	Wetness	0.24
	Water erosion	0.37	Shrink-swell	0.78	Too acid	0.92
	Too acid	0.50				
13A:						
Bluford-------------	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Low content of organic matter	0.05	Wetness	0.04	Wetness	0.04
	Water erosion	0.37	Shrink-swell	0.97	Too acid	0.68
	Too acid	0.50				
13B:						
Bluford-------------	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Low content of organic matter	0.05	Wetness	0.04	Wetness	0.04
	Water erosion	0.37	Shrink-swell	0.97	Too acid	0.68
	Too acid	0.50				
48A:						
Ebbert--------------	Fair		Poor		Poor	
	Water erosion	0.37	Wetness	0.00	Wetness	0.00
	Too acid	0.54	Low strength	0.00	Too clayey	0.67
	Low content of organic matter	0.68	Shrink-swell	0.97		
	Too clayey	0.98				
56B:						
Dana----------------	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Too clayey	0.76
	Carbonate content	0.68	Shrink-swell	0.90	Wetness	0.98
	Too acid	0.97	Wetness	0.98		
	Too clayey	0.98				
	Water erosion	0.99				
56B2:						
Dana----------------	Fair		Poor		Fair	
	Carbonate content	0.68	Low strength	0.00	Wetness	0.76
	Too acid	0.95	Wetness	0.76	Too clayey	0.76
	Too clayey	0.98	Shrink-swell	0.93		
	Water erosion	0.99				

Table 16b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
132A:						
Starks-------------	Fair		Poor		Fair	
	Low content of organic matter	0.32	Low strength	0.00	Wetness	0.29
	Water erosion	0.68	Wetness	0.29	Too clayey	0.61
	Too acid	0.68	Shrink-swell	0.99		
	Too clayey	0.98				
136A:						
Brooklyn-----------	Poor		Poor		Poor	
	Too clayey	0.00	Wetness	0.00	Wetness	0.00
	Water erosion	0.37	Low strength	0.00	Too clayey	0.00
	Low content of organic matter	0.50	Shrink-swell	0.64		
	Carbonate content	0.68				
	Too acid	0.92				
138A:						
Shiloh-------------	Poor		Poor		Poor	
	Too clayey	0.00	Wetness	0.00	Wetness	0.00
			Low strength	0.00	Too clayey	0.00
			Shrink-swell	0.22		
148B:						
Proctor------------	Fair		Poor		Good	
	Low content of organic matter	0.50	Low strength	0.00		
	Water erosion	0.99				
149A:						
Brenton------------	Fair		Fair		Fair	
	Too clayey	0.82	Wetness	0.14	Wetness	0.14
	Too acid	0.84			Too clayey	0.64
	Water erosion	0.99				
152A:						
Drummer------------	Fair		Poor		Poor	
	Too acid	0.95	Wetness	0.00	Wetness	0.00
	Too clayey	0.98	Low strength	0.00	Too clayey	0.86
	Water erosion	0.99	Shrink-swell	0.99		
154A:						
Flanagan-----------	Fair		Poor		Fair	
	Too clayey	0.18	Low strength	0.00	Too clayey	0.13
	Carbonate content	0.68	Wetness	0.14	Wetness	0.14
	Too acid	0.84	Shrink-swell	0.90		
	Low content of organic matter	0.88				
	Water erosion	0.99				
206A:						
Thorp--------------	Fair		Poor		Poor	
	Low content of organic matter	0.68	Wetness	0.00	Wetness	0.00
	Water erosion	0.90	Low strength	0.00		
	Too acid	0.97	Shrink-swell	0.99		

Table 16b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
219A:						
Millbrook-----------	Fair		Fair		Fair	
	Water erosion	0.06	Wetness	0.14	Wetness	0.14
	Low content of organic matter	0.40	Shrink-swell	0.97		
	Too acid	0.84				
244A:						
Hartsburg-----------	Fair		Poor		Poor	
	Low content of organic matter	0.18	Wetness	0.00	Wetness	0.00
			Low strength	0.00	Too clayey	0.82
	Water erosion	0.68				
	Carbonate content	0.68				
	Too clayey	0.82				
291B:						
Xenia---------------	Fair		Poor		Fair	
	Low content of organic matter	0.32	Low strength	0.00	Wetness	0.14
			Wetness	0.14	Too clayey	0.61
	Water erosion	0.68	Shrink-swell	0.94	Hard to reclaim (dense layer)	0.97
	Carbonate content	0.68				
	Too acid	0.74				
	Too clayey	0.98				
322B:						
Russell-------------	Fair		Fair		Fair	
	Low content of organic matter	0.02	Shrink-swell	0.98	Hard to reclaim (dense layer)	0.35
	Too acid	0.54			Too clayey	0.57
	Carbonate content	0.68			Too acid	0.98
	Water erosion	0.68				
	Too clayey	0.92				
322C2:						
Russell-------------	Fair		Poor		Fair	
	Too acid	0.20	Low strength	0.00	Too clayey	0.57
	Low content of organic matter	0.32	Shrink-swell	0.90	Too acid	0.76
	Carbonate content	0.68				
	Water erosion	0.90				
	Too clayey	0.92				
330A:						
Peotone-------------	Fair		Poor		Poor	
	Too clayey	0.18	Wetness	0.00	Wetness	0.00
			Low strength	0.00	Too clayey	0.18
			Shrink-swell	0.21		
348B:						
Wingate-------------	Fair		Poor		Fair	
	Low content of organic matter	0.08	Low strength	0.00	Hard to reclaim (dense layer)	0.29
			Wetness	0.76		
	Water erosion	0.68	Shrink-swell	0.95	Too clayey	0.67
	Carbonate content	0.68			Wetness	0.76
	Too acid	0.74				
	Too clayey	0.98				

Table 16b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
353A:						
Toronto------------	Fair		Poor		Poor	
	Low content of organic matter	0.08	Wetness	0.00	Wetness	0.00
	Too acid	0.39	Low strength	0.00	Hard to reclaim (dense layer)	0.20
	Carbonate content	0.68	Shrink-swell	0.94	Too clayey	0.67
	Water erosion	0.68			Too acid	0.92
	Too clayey	0.98				
481A:						
Raub---------------	Fair		Fair		Fair	
	Low content of organic matter	0.08	Wetness	0.14	Wetness	0.14
	Carbonate content	0.68	Shrink-swell	0.99		
	Too acid	0.95				
	Water erosion	0.99				
496A:						
Fincastle----------	Fair		Fair		Fair	
	Low content of organic matter	0.32	Wetness	0.14	Wetness	0.14
	Water erosion	0.37	Shrink-swell	0.97	Too clayey	0.57
	Carbonate content	0.68			Hard to reclaim (dense layer)	0.71
	Too acid	0.74				
	Too clayey	0.92				
533:						
Urban land----------	Not rated		Not rated		Not rated	
570B:						
Martinsville--------	Fair		Good		Good	
	Low content of organic matter	0.12				
	Water erosion	0.37				
	Too acid	0.54				
570C2:						
Martinsville--------	Fair		Good		Good	
	Low content of organic matter	0.12				
	Too acid	0.84				
618C2:						
Senachwine----------	Fair		Good		Poor	
	Low content of organic matter	0.02			Hard to reclaim (dense layer)	0.00
	Carbonate content	0.68				
	Too acid	0.84				
	Water erosion	0.90				
618C3:						
Senachwine----------	Fair		Good		Poor	
	Low content of organic matter	0.08			Hard to reclaim (dense layer)	0.00
	Carbonate content	0.68				
	Too acid	0.95				
	Water erosion	0.99				

Table 16b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
618D2:						
Senachwine----------	Fair		Good		Poor	
	Low content of organic matter	0.02			Hard to reclaim (dense layer)	0.00
	Carbonate content	0.68			Slope	0.04
	Too acid	0.84				
	Water erosion	0.90				
618D3:						
Senachwine----------	Fair		Good		Poor	
	Low content of organic matter	0.01			Hard to reclaim (dense layer)	0.00
	Carbonate content	0.68			Slope	0.04
	Water erosion	0.99				
618F:						
Senachwine----------	Fair		Poor		Poor	
	Low content of organic matter	0.02	Slope	0.00	Slope	0.00
					Hard to reclaim (dense layer)	0.00
	Carbonate content	0.68			Too clayey	0.55
	Too acid	0.74				
	Too clayey	0.98				
	Water erosion	0.99				
618G:						
Senachwine----------	Fair		Poor		Poor	
	Low content of organic matter	0.01	Slope	0.00	Slope	0.00
					Hard to reclaim (dense layer)	0.00
	Too acid	0.54				
	Carbonate content	0.68			Too clayey	0.55
	Water erosion	0.68			Too acid	0.98
	Too clayey	0.98				
668B2:						
Somonauk------------	Fair		Poor		Fair	
	Low content of organic matter	0.32	Low strength	0.00	Too clayey	0.57
			Shrink-swell	0.97	Wetness	0.98
	Too acid	0.68	Wetness	0.98		
	Water erosion	0.90				
	Too clayey	0.92				
722A:						
Drummer-------------	Fair		Poor		Poor	
	Too acid	0.92	Wetness	0.00	Wetness	0.00
	Too clayey	0.98	Low strength	0.00	Too clayey	0.81
	Water erosion	0.99	Shrink-swell	0.99		
Milford-------------	Fair		Poor		Poor	
	Too clayey	0.18	Wetness	0.00	Wetness	0.00
	Low content of organic matter	0.18	Shrink-swell	0.86	Too clayey	0.18
	Water erosion	0.99				
830:						
Landfill------------	Not rated		Not rated		Not rated	
864:						
Pits, quarry--------	Not rated		Not rated		Not rated	

Table 16b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
865:						
Pits, gravel	Not rated		Not rated		Not rated	
871B:						
Lenzburg	Poor		Poor		Fair	
	Droughty	0.00	Low strength	0.00	Rock fragments	0.18
	Low content of organic matter	0.88				
871D:						
Lenzburg	Poor		Poor		Fair	
	Droughty	0.00	Low strength	0.00	Rock fragments	0.99
	Low content of organic matter	0.88			Slope	0.84
3073A:						
Ross	Good		Good		Good	
3107A:						
Sawmill	Fair		Poor		Poor	
	Too clayey	0.98	Wetness	0.00	Wetness	0.00
	Too acid	0.99	Low strength	0.00	Too clayey	0.98
			Shrink-swell	0.87		
3226A:						
Wirt	Fair		Good		Good	
	Water erosion	0.68				
	Low content of organic matter	0.82				
3284A:						
Tice	Fair		Poor		Fair	
	Low content of organic matter	0.88	Low strength	0.00	Wetness	0.29
			Wetness	0.29	Too clayey	0.98
	Too clayey	0.98	Shrink-swell	0.87		
3304A:						
Landes	Fair		Good		Good	
	Low content of organic matter	0.50				
	Droughty	0.99				
3424A:						
Shoals	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Wetness	0.04
			Wetness	0.04		
	Water erosion	0.90				
3450A:						
Brouillett	Fair		Fair		Fair	
	Low content of organic matter	0.88	Wetness	0.50	Wetness	0.50
	Water erosion	0.99				
3451A:						
Lawson	Fair		Poor		Fair	
	Low content of organic matter	0.88	Low strength	0.00	Wetness	0.89
			Wetness	0.89		
	Water erosion	0.99				

Table 16b.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
7132A:						
Starks--------------	Fair		Poor		Fair	
	Water erosion	0.37	Low strength	0.00	Wetness	0.29
	Low content of organic matter	0.68	Wetness	0.29	Too clayey	0.67
			Shrink-swell	0.99		
	Too acid	0.74				
	Too clayey	0.98				
7373B:						
Camden--------------	Fair		Fair		Fair	
	Low content of organic matter	0.08	Shrink-swell	0.99	Too clayey	0.55
	Water erosion	0.37				
	Too acid	0.84				
	Too clayey	0.92				
7570B:						
Martinsville--------	Fair		Good		Good	
	Low content of organic matter	0.12				
	Water erosion	0.37				
	Too acid	0.54				

Table 17a.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
2A:						
Cisne	Somewhat limited Seepage	 0.04	Very limited Ponding Depth to saturated zone Piping	 1.00 1.00 0.23	Somewhat limited Slow refill Cutbanks cave	 0.28 0.10
3A:						
Hoyleton	Somewhat limited Seepage	 0.04	Very limited Depth to saturated zone Piping	 1.00 0.01	Somewhat limited Slow refill Cutbanks cave	 0.96 0.10
13A:						
Bluford	Somewhat limited Seepage	 0.04	Very limited Depth to saturated zone Piping	 1.00 0.26	Very limited Depth to water	 1.00
13B:						
Bluford	Somewhat limited Seepage	 0.04	Very limited Depth to saturated zone Piping	 1.00 1.00	Very limited Depth to water	 1.00
48A:						
Ebbert	Somewhat limited Seepage	 0.04	Very limited Ponding Depth to saturated zone Piping	 1.00 1.00 0.38	Somewhat limited Slow refill Cutbanks cave	 0.28 0.10
56B:						
Dana	Somewhat limited Seepage	 0.72	Somewhat limited Depth to saturated zone Piping	 0.68 0.03	Very limited Depth to water	 1.00
56B2:						
Dana	Somewhat limited Seepage	 0.72	Somewhat limited Depth to saturated zone Piping	 0.95 0.12	Very limited Depth to water	 1.00
132A:						
Starks	Somewhat limited Seepage	 0.72	Very limited Depth to saturated zone Piping	 1.00 0.77	Somewhat limited Slow refill Cutbanks cave	 0.28 0.10

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
136A:						
Brooklyn----------	Somewhat limited		Very limited		Very limited	
	Seepage	0.72	Ponding	1.00	Depth to water	1.00
			Depth to saturated zone	1.00		
			Piping	0.31		
138A:						
Shiloh-----------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Ponding	1.00	Slow refill	0.96
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Hard to pack	0.13		
148B:						
Proctor-----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Piping	0.72	Depth to water	1.00
149A:						
Brenton-----------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Cutbanks cave	0.50
			Piping	0.97	Slow refill	0.28
152A:						
Drummer-----------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	0.43		
			Seepage	0.01		
154A:						
Flanagan----------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
			Piping	0.42	Cutbanks cave	0.10
206A:						
Thorp-------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Ponding	1.00	Cutbanks cave	1.00
			Depth to saturated zone	1.00		
			Piping	0.48		
			Seepage	0.01		
219A:						
Millbrook---------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
			Piping	0.80	Cutbanks cave	0.10
244A:						
Hartsburg---------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	0.39		

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
291B:						
Xenia-------------	Somewhat limited		Very limited		Very limited	
	Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
			Piping	0.60		
322B:						
Russell-----------	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.87	Depth to water	1.00
322C2:						
Russell-----------	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.47	Depth to water	1.00
330A:						
Peotone-----------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Ponding	1.00	Slow refill	0.96
			Depth to saturated zone	1.00	Cutbanks cave	0.10
348B:						
Wingate-----------	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Depth to saturated zone	0.95	Depth to water	1.00
			Piping	0.47		
353A:						
Toronto-----------	Somewhat limited		Very limited		Very limited	
	Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
			Piping	0.43		
481A:						
Raub--------------	Somewhat limited		Very limited		Very limited	
	Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
			Piping	0.84		
496A:						
Fincastle---------	Somewhat limited		Very limited		Very limited	
	Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
			Piping	0.89		
533:						
Urban land--------	Not rated		Not rated		Not rated	
570B:						
Martinsville------	Very limited		Very limited		Very limited	
	Seepage	1.00	Piping	1.00	Depth to water	1.00
570C2:						
Martinsville------	Very limited		Very limited		Very limited	
	Seepage	1.00	Piping	1.00	Depth to water	1.00
618C2:						
Senachwine--------	Somewhat limited		Very limited		Very limited	
	Seepage	0.72	Piping	1.00	Depth to water	1.00

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
618C3:						
Senachwine--------	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.95	Depth to water	1.00
618D2:						
Senachwine--------	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.98	Depth to water	1.00
	Slope	0.02				
618D3:						
Senachwine--------	Somewhat limited		Very limited		Very limited	
	Seepage	0.72	Piping	1.00	Depth to water	1.00
	Slope	0.02				
618F:						
Senachwine--------	Somewhat limited		Very limited		Very limited	
	Seepage	0.72	Piping	1.00	Depth to water	1.00
	Slope	0.36				
618G:						
Senachwine--------	Somewhat limited		Very limited		Very limited	
	Slope	0.99	Piping	1.00	Depth to water	1.00
	Seepage	0.72				
668B2:						
Somonauk----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Piping	0.76	Cutbanks cave	1.00
			Depth to saturated zone	0.68	Depth to saturated zone	0.14
722A:						
Drummer-----------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	0.43		
			Seepage	0.01		
Milford-----------	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	0.74		
830:						
Landfill----------	Not limited		Not rated		Not rated	
864:						
Pits, quarry------	Not rated		Not rated		Not rated	
865:						
Pits, gravel------	Not rated		Not rated		Not rated	
871B:						
Lenzburg----------	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.04	Piping	0.76	Depth to water	1.00
871D:						
Lenzburg----------	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.04	Piping	0.76	Depth to water	1.00

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3073A:						
Ross	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Piping	1.00	Depth to saturated zone	0.96
					Cutbanks cave	0.10
3107A:						
Sawmill	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	0.02		
3226A:						
Wirt	Very limited		Very limited		Very limited	
	Seepage	1.00	Piping	1.00	Depth to water	1.00
3284A:						
Tice	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
			Piping	0.02		
3304A:						
Landes	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.07	Depth to water	1.00
3424A:						
Shoals	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
			Piping	0.88		
3450A:						
Brouillett	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Piping	1.00	Cutbanks cave	0.10
			Depth to saturated zone	1.00		
3451A:						
Lawson	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	0.86	Slow refill	0.28
					Cutbanks cave	0.10
			Piping	0.84	Depth to saturated zone	0.06
7132A:						
Starks	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	0.88		
7373B:						
Camden	Very limited		Very limited		Very limited	
	Seepage	1.00	Piping	1.00	Depth to water	1.00
			Seepage	0.10		

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7570B:						
Martinsville------	Very limited		Very limited		Very limited	
	Seepage	1.00	Piping	1.00	Depth to water	1.00

Table 17b.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Constructing grassed waterways and surface drains		Constructing terraces and diversions		Tile drains and underground outlets	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
2A:						
Cisne	Not limited		Very limited		Very limited	
			Water erosion	1.00	Restricted permeability	0.98
			Ponding	1.00	Frequent ponding	0.33
			Depth to saturated zone	1.00	Frost action	0.10
3A:						
Hoyleton	Not limited		Very limited		Somewhat limited	
			Water erosion	1.00	Restricted permeability	0.43
			Depth to saturated zone	1.00	Deep to water	0.05
13A:						
Bluford	Not limited		Very limited		Somewhat limited	
			Water erosion	1.00	Restricted permeability	0.43
			Depth to saturated zone	1.00	Frost action	0.10
					Deep to water	0.01
13B:						
Bluford	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.16	Water erosion	1.00	Restricted permeability	0.21
			Depth to saturated zone	1.00	Frost action	0.10
			Slope	0.16	Deep to water	0.01
48A:						
Ebbert	Not limited		Very limited		Very limited	
			Water erosion	1.00	Restricted permeability	0.96
			Ponding	1.00	Frequent ponding	0.33
			Depth to saturated zone	1.00	Frost action	0.10
56B:						
Dana	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Water erosion	1.00	Deep to water	0.37
			Depth to saturated zone	1.00	Frost action	0.10
			Slope	0.37	Slope	0.04
56B2:						
Dana	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Water erosion	1.00	Deep to water	0.17
			Depth to saturated zone	1.00	Frost action	0.10
			Slope	0.37	Slope	0.04
132A:						
Starks	Not limited		Very limited		Somewhat limited	
			Water erosion	1.00	Restricted permeability	0.21
			Depth to saturated zone	1.00	Frost action	0.10
					Deep to water	0.06

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
136A:						
Brooklyn------------	Not limited		Very limited		Very limited	
			Water erosion	1.00	Restricted permeability	0.96
			Ponding	1.00	Frequent ponding	0.33
			Depth to saturated zone	1.00	Frost action	0.10
138A:						
Shiloh--------------	Not limited		Very limited		Somewhat limited	
			Ponding	1.00	Frequent ponding	0.47
			Depth to saturated zone	1.00	Restricted permeability	0.21
			Water erosion	0.88	Frost action	0.10
148B:						
Proctor-------------	Somewhat limited		Very limited		Very limited	
	Slope	0.37	Water erosion	1.00	Very deep to water	1.00
			Slope	0.37	Frost action	0.10
					Slope	0.04
149A:						
Brenton-------------	Not limited		Very limited		Somewhat limited	
			Water erosion	1.00	Frost action	0.10
			Depth to saturated zone	1.00	Deep to water	0.03
152A:						
Drummer-------------	Not limited		Very limited		Somewhat limited	
			Water erosion	1.00	Frequent ponding	0.33
			Ponding	1.00	Frost action	0.10
			Depth to saturated zone	1.00		
154A:						
Flanagan------------	Not limited		Very limited		Somewhat limited	
			Water erosion	1.00	Restricted permeability	0.21
			Depth to saturated zone	1.00	Frost action	0.10
					Deep to water	0.03
206A:						
Thorp---------------	Not limited		Very limited		Very limited	
			Water erosion	1.00	Restricted permeability	0.96
			Ponding	1.00	Frequent ponding	0.33
			Depth to saturated zone	1.00	Frost action	0.10
219A:						
Millbrook-----------	Not limited		Very limited		Somewhat limited	
			Water erosion	1.00	Restricted permeability	0.21
			Depth to saturated zone	1.00	Frost action	0.10
					Deep to water	0.03

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
244A:						
Hartsburg	Not limited		Very limited		Somewhat limited	
			Water erosion	1.00	Frequent ponding	0.33
			Ponding	1.00	Frost action	0.10
			Depth to saturated zone	1.00		
291B:						
Xenia	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Water erosion	1.00	Frost action	0.10
			Depth to saturated zone	1.00	Slope	0.04
			Slope	0.37	Deep to water	0.03
322B:						
Russell	Somewhat limited		Very limited		Very limited	
	Slope	0.16	Water erosion	1.00	Very deep to water	1.00
			Slope	0.16	Restricted permeability	0.21
					Frost action	0.10
322C2:						
Russell	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Very deep to water	1.00
			Slope	1.00	Slope	0.84
					Frost action	0.10
330A:						
Peotone	Not limited		Very limited		Somewhat limited	
			Ponding	1.00	Frequent ponding	0.47
			Depth to saturated zone	1.00	Restricted permeability	0.21
			Water erosion	0.12	Frost action	0.10
348B:						
Wingate	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Water erosion	1.00	Deep to water	0.17
			Depth to saturated zone	1.00	Frost action	0.10
			Slope	0.37	Slope	0.04
353A:						
Toronto	Not limited		Very limited		Somewhat limited	
			Water erosion	1.00	Frost action	0.10
			Depth to saturated zone	1.00		
481A:						
Raub	Not limited		Very limited		Somewhat limited	
			Water erosion	1.00	Frost action	0.10
			Depth to saturated zone	1.00	Deep to water	0.03

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
496A:						
Fincastle----------	Not limited		Very limited		Somewhat limited	
			Water erosion	1.00	Restricted permeability	0.21
			Depth to saturated zone	1.00	Frost action	0.10
					Deep to water	0.03
533:						
Urban land---------	Not rated		Not rated		Not rated	
570B:						
Martinsville--------	Somewhat limited		Very limited		Very limited	
	Slope	0.37	Water erosion	1.00	Very deep to water	1.00
			Slope	0.37	Slope	0.04
570C2:						
Martinsville--------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Very deep to water	1.00
			Water erosion	0.88	Slope	0.84
618C2:						
Senachwine---------	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Very deep to water	1.00
			Slope	1.00	Slope	0.84
					Restricted permeability	0.21
618C3:						
Senachwine---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Very deep to water	1.00
			Water erosion	0.88	Slope	0.84
					Restricted permeability	0.21
618D2:						
Senachwine---------	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Slope	1.00
			Slope	1.00	Very deep to water	1.00
					Restricted permeability	0.21
618D3:						
Senachwine---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Water erosion	0.12	Very deep to water	1.00
					Restricted permeability	0.21
618F:						
Senachwine---------	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Slope	1.00
			Slope	1.00	Very deep to water	1.00

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
618G:						
Senachwine	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Slope	1.00
			Slope	1.00	Very deep to water	1.00
					Restricted permeability	0.21
668B2:						
Somonauk	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.16	Water erosion	1.00	Deep to water	0.37
			Depth to saturated zone	1.00	Frost action	0.10
			Slope	0.16		
722A:						
Drummer	Not limited		Very limited		Somewhat limited	
			Water erosion	1.00	Frequent ponding	0.33
			Ponding	1.00	Frost action	0.10
			Depth to saturated zone	1.00		
Milford	Not limited		Very limited		Somewhat limited	
			Ponding	1.00	Frequent ponding	0.33
			Depth to saturated zone	1.00	Restricted permeability	0.21
			Water erosion	0.88	Frost action	0.10
830:						
Landfill	Not rated		Not rated		Not rated	
864:						
Pits, quarry	Not rated		Not rated		Not rated	
865:						
Pits, gravel	Not rated		Not rated		Not rated	
871B:						
Lenzburg	Somewhat limited		Somewhat limited		Very limited	
	Content of large stones	0.82	Content of large stones	0.82	Very deep to water	1.00
	Slope	0.16	Water erosion	0.50		
			Slope	0.16		
871D:						
Lenzburg	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Very deep to water	1.00
			Water erosion	0.50	Slope	1.00
3073A:						
Ross	Not limited		Somewhat limited		Very limited	
			Water erosion	0.88	Very deep to water	1.00
					Frequent flooding	0.35

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
3107A:						
Sawmill	Not limited		Very limited		Somewhat limited	
			Ponding	1.00	Frequent flooding	0.35
			Depth to saturated zone	1.00	Frequent ponding	0.33
			Water erosion	0.50	Frost action	0.10
3226A:						
Wirt	Not limited		Very limited		Very limited	
			Water erosion	1.00	Very deep to water	1.00
					Frequent flooding	0.35
3284A:						
Tice	Not limited		Very limited		Somewhat limited	
			Depth to saturated zone	1.00	Frequent flooding	0.35
			Water erosion	0.88	Frost action	0.10
					Deep to water	0.06
3304A:						
Landes	Not limited		Very limited		Very limited	
			Too sandy	1.00	Very deep to water	1.00
			Water erosion	0.88	Cutbanks cave	0.50
					Frequent flooding	0.35
3424A:						
Shoals	Not limited		Very limited		Somewhat limited	
			Water erosion	1.00	Frequent flooding	0.35
			Depth to saturated zone	1.00	Frost action	0.10
					Deep to water	0.01
3450A:						
Brouillett	Not limited		Very limited		Somewhat limited	
			Depth to saturated zone	1.00	Frequent flooding	0.35
			Water erosion	0.88	Deep to water	0.10
3451A:						
Lawson	Not limited		Very limited		Somewhat limited	
			Depth to saturated zone	1.00	Frequent flooding	0.35
			Water erosion	0.88	Deep to water	0.25
					Frost action	0.10
7132A:						
Starks	Not limited		Very limited		Somewhat limited	
			Water erosion	1.00	Restricted permeability	0.21
			Depth to saturated zone	1.00	Frost action	0.10
					Deep to water	0.06
					Rare flooding	0.05

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
7373B:						
Camden	Somewhat limited		Very limited		Very limited	
	Slope	0.26	Water erosion	1.00	Very deep to water	1.00
			Slope	0.26	Restricted permeability	0.21
					Frost action	0.10
					Rare flooding	0.05
					Slope	0.01
7570B:						
Martinsville	Somewhat limited		Very limited		Very limited	
	Slope	0.37	Water erosion	1.00	Very deep to water	1.00
			Slope	0.37	Rare flooding	0.05
					Slope	0.04

Table 18.--Engineering Index Properties

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passi sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
	In				Pct	Pct			
2A:									
Cisne-----------	0-8	Silt loam	CL-ML, ML, CL	A-6, A-4	0	0	100	100	96-100
	8-17	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100
	17-37	Silty clay loam, silty clay	CL, CH	A-7-6	0	0	100	100	98-100
	37-60	Silty clay loam, silt loam, clay loam, loam	CL	A-6, A-7-6	0	0	95-100	84-100	78-99
	60-80	Silt loam, loam, clay loam, silty clay loam	CL	A-6, A-7-6	0	0	95-100	82-97	72-96
3A:									
Hoyleton--------	0-8	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	96-10
	8-11	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	100	96-10
	11-39	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	96-10
	39-80	Silt loam, silty clay loam, clay loam, loam	CL	A-6, A-7-6	0	0	100	95-100	81-10
13A:									
Bluford---------	0-7	Silt loam	CL-ML, CL, ML	A-4	0	0	100	100	93-10
	7-20	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	96-10
	20-35	Silty clay, silty clay loam	CH, CL	A-7-6	0	0	100	100	98-10
	35-60	Silty clay loam, silt loam, loam	CL	A-7-6, A-6	0	0	100	98-100	90-10
13B:									
Bluford---------	0-7	Silt loam	CL-ML, CL, ML	A-4	0	0	100	100	96-10
	7-20	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	96-99
	20-35	Silty clay, silty clay loam	CH, CL	A-7-6	0	0	100	100	98-10
	35-60	Silty clay loam, silt loam, loam	CL	A-7-6, A-6	0	0	100	98-100	90-98

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
	In				Pct	Pct			
48A:									
Ebbert----------	0-13	Silt loam	CL-ML, CL	A-6, A-4	0	0	100	100	96-100
	13-22	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	96-100
	22-48	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	96-100
	48-60	Clay loam, silt loam, silty clay loam	CL	A-6	0	0	95-100	92-100	82-100
56B:									
Dana------------	0-11	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100
	11-32	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100
	32-58	Clay loam	CL	A-6, A-7-6	0	0-3	90-98	90-98	80-95
	58-80	Loam, clay loam	CL-ML, CL	A-4, A-6	0-1	0-3	90-98	80-98	70-90
56B2:									
Dana------------	0-7	Silt loam	CL, ML	A-6	0	0	100	97-100	95-100
	7-34	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-100
	34-53	Clay loam	CL	A-6	0	0	95-100	85-98	75-95
	53-60	Loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0-1	0-3	85-100	80-95	70-90
132A:									
Starks----------	0-8	Silt loam	CL, ML	A-6, A-4	0	0	100	97-100	95-100
	8-13	Silt loam	CL, ML	A-6, A-4	0	0	100	97-100	95-100
	13-36	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-100
	36-44	Sandy loam, sandy clay loam	SC, SM, CL, SC-SM, CL-ML	A-4, A-6, A-2-4, A-2-6	0	0	100	90-100	50-100
	44-60	Stratified sandy loam to sandy clay loam	SC, SC-SM, SM, CL-ML, CL, ML	A-2-4, A-4	0	0	85-100	75-100	40-100
136A:									
Brooklyn--------	0-9	Silt loam	ML, CL-ML, CL	A-4	0	0	100	100	95-100
	9-14	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100
	14-40	Silty clay loam, silty clay	MH, CH, CL	A-7-5, A-7-6	0	0	100	100	95-100
	40-62	Clay loam, gravelly clay loam	SC, CL	A-6, A-7-6	0	0-2	75-95	70-90	55-90
	62-73	Stratified sandy loam to loam	CL-ML, CL, SC, SC-SM	A-6, A-4, A-2-4	0	0	85-100	80-100	53-100
	73-80	Loam	ML, CL-ML, SC, SM, SC-SM, CL	A-6, A-4	0-1	0-3	85-100	80-95	65-95

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage pass sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
	In				Pct	Pct			
138A:									
Shiloh----------	0-19	Silty clay loam	MH	A-7-5	0	0	100	100	95-10
	19-48	Silty clay, silty clay loam	CH, MH	A-7-5, A-7-6	0	0	100	100	98-10
	48-68	Silty clay loam, silty clay	CL, CH	A-7-6	0	0	100	100	98-10
	68-86	Clay, silty clay, silty clay loam, clay loam	CL, CH	A-7-6	0	0	100	91-100	84-10
148B:									
Proctor---------	0-13	Silt loam	CL	A-6	0	0	100	100	97-10
	13-25	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	97-10
	25-45	Clay loam, sandy loam, loam, sandy clay loam	CL, SC	A-4, A-6	0	0	85-100	85-100	75-10
	45-60	Stratified sandy loam to silt loam	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	85-100	76-100	60-99
149A:									
Brenton---------	0-14	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	97-100	95-10
	14-33	Silty clay loam	CL	A-6, A-7-6	0	0	100	97-100	95-10
	33-45	Stratified loam to fine sandy loam	CL	A-6, A-4	0	0	95-100	90-100	75-90
	45-80	Stratified silt to fine sandy loam	CL-ML, CL	A-6, A-4	0	0	95-100	90-100	75-90
152A:									
Drummer---------	0-14	Silty clay loam	CL, ML	A-7-6, A-7-5	0	0	100	97-100	95-10
	14-41	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-10
	41-47	Loam	CL	A-6, A-4	0	0	95-100	90-100	75-95
	47-60	Stratified loam to sandy loam	SC, CL, CL-ML, SC-SM	A-4, A-2-4	0	0	95-100	80-100	55-95
154A:									
Flanagan--------	0-18	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-10
	18-38	Silty clay loam, silty clay	CL, CH	A-7-6	0	0	100	100	95-10
	38-45	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-10
	45-49	Silt loam, loam	CL	A-6, A-4	0	0-3	85-100	80-100	75-90
	49-60	Loam	SC-SM, SC, CL, CL-ML	A-4, A-6	0-1	0-5	85-100	80-100	75-90

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage pass sieve number-		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
	In				Pct	Pct			
206A:									
Thorp-----------	0-14	Silt loam	CL	A-4, A-6	0	0	100	95-100	90-10
	14-19	Silt loam	CL	A-4, A-6	0	0	100	95-100	90-10
	19-43	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	95-100	90-10
	43-50	Loam, clay loam, sandy clay loam	SC, CL	A-4, A-6	0	0	90-100	85-100	70-95
	50-65	Stratified loamy sand to loam	SC-SM, SM	A-2-4, A-4	0	0	85-100	80-95	35-80
219A:									
Millbrook-------	0-7	Silt loam	CL-ML, CL, ML	A-4	0	0	100	100	94-10
	7-14	Silt loam	CL, CL-ML	A-4	0	0	100	100	95-10
	14-35	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	97-10
	35-55	Clay loam, loam, sandy clay loam	CL, SC	A-6, A-7-6	0	0	100	81-100	62-99
	55-80	Stratified sandy loam	SC, CL-ML, CL, SC-SM	A-4, A-6, A-2-6, A-2-4	0	0	100	82-100	51-99
244A:									
Hartsburg-------	0-17	Silty clay loam	ML, CL	A-7-6	0	0	100	100	97-10
	17-34	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	97-10
	34-60	Silt loam	CL	A-6, A-4	0	0	95-100	90-100	90-10
291B:									
Xenia-----------	0-4	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	97-100	95-10
	4-16	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	97-100	95-10
	16-37	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-10
	37-57	Clay loam, loam	CL	A-6	0	0	90-100	85-99	75-95
	57-72	Loam	CL-ML, CL, SC-SM	A-4	0-1	0-3	90-100	85-99	73-95
322B:									
Russell---------	0-6	Silt loam	CL, ML	A-4, A-6	0	0	100	97-100	95-10
	6-13	Silt loam	CL, ML	A-4, A-6	0	0	100	97-100	95-10
	13-28	Silty clay loam	CL, ML	A-7-6, A-6	0	0	100	97-100	95-10
	28-47	Clay loam, loam	CL	A-6	0	0	90-100	85-99	75-95
	47-80	Loam	CL-ML, CL, SC-SM	A-4	0-1	0-3	90-100	85-99	70-90

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passi sieve number--		
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40
	In				Pct	Pct			
322C2:									
Russell---------	0-7	Silt loam	CL, ML	A-6	0	0	100	97-100	95-10
	7-27	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-10
	27-56	Clay loam	CL	A-6	0	0	90-100	85-100	75-95
	56-72	Loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0-1	0-3	85-100	80-100	70-95
330A:									
Peotone---------	0-6	Silty clay loam	MH, CH	A-7-6	0	0	100	100	97-10
	6-28	Silty clay loam	MH, CH	A-7-6	0	0	100	100	97-10
	28-44	Silty clay loam, silty clay	MH, CH	A-7-6	0	0	100	97-100	95-10
	44-60	Silty clay loam	CL, CH	A-7-6, A-6	0	0	100	97-100	95-10
348B:									
Wingate---------	0-9	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	97-100	95-10
	9-12	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	97-100	95-10
	12-27	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-10
	27-52	Clay loam, loam	CL	A-6	0	0	90-100	85-99	75-95
	52-60	Loam	CL-ML, CL, SC-SM	A-4	0-1	0-3	90-100	85-99	70-95
353A:									
Toronto---------	0-9	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	97-100	95-10
	9-12	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	97-100	95-10
	12-26	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-10
	26-54	Clay loam, loam	CL	A-6	0	0	90-100	85-99	75-95
	54-60	Loam	CL-ML, CL	A-4	0-1	0-3	90-100	85-99	70-90
481A:									
Raub------------	0-18	Silt loam	CL-ML, CL, ML	A-4, A-6	0	0	100	97-100	95-10
	18-32	Silty clay loam	CL	A-6, A-7-6	0	0	100	97-100	95-10
	32-50	Clay loam, loam	CL	A-6	0	0	90-100	85-100	75-95
	50-60	Loam, clay loam	CL-ML, CL, SC, SC-SM	A-4, A-6	0-1	0-3	85-100	80-95	70-90
496A:									
Fincastle-------	0-8	Silt loam	CL, ML, CL-ML	A-6, A-4	0	0	100	97-100	95-10
	8-11	Silt loam	CL, ML	A-6, A-4	0	0	100	97-100	95-10
	11-32	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-10
	32-40	Clay loam	CL	A-6	0	0	90-100	80-100	70-95
	40-50	Clay loam, loam	CL	A-6, A-4	0	0	90-100	80-100	70-95
	50-80	Loam	CL-ML, SC-SM, SC, CL	A-4	0-1	0-3	85-100	80-95	70-90

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage pas[sing] sieve number[--]: 4	10	40
	In				Pct	Pct			
533. Urban land									
570B:									
Martinsville----	0-9	Silt loam	ML, CL-ML	A-4	0	0	100	85-100	70-1
	9-12	Silt loam	ML, CL-ML, CL	A-4	0	0	100	85-100	70-1
	12-45	Clay loam, loam, sandy clay loam	CL, SC	A-4, A-6	0	0	95-100	85-100	60-1
	45-57	Sandy loam, sandy clay loam, loam	CL, SC	A-4, A-6	0	0	92-100	85-100	45-9
	57-80	Stratified sand to silt loam	SM, SC-SM, ML, CL-ML, SW-SM	A-4, A-2-4, A-1-b	0	0	92-100	85-100	40-9
570C2:									
Martinsville----	0-9	Loam	CL-ML	A-4	0	0	100	85-100	65-1
	9-45	Clay loam, loam, sandy clay loam	CL, SC	A-4, A-6	0	0	95-100	85-100	60-1
	45-57	Sandy loam, sandy clay loam, loam	CL, SC	A-4, A-6	0	0	92-100	85-100	50-1
	57-80	Stratified sand to silt loam	SM, SC-SM, ML, CL-ML, SW-SM	A-4, A-2-4, A-1-b	0	0	92-100	85-100	40-1
618C2:									
Senachwine------	0-6	Silt loam	CL, ML	A-6	0	0	95-100	95-100	90-9
	6-12	Silty clay loam, clay loam	CL	A-6	0	0	95-100	95-100	90-9
	12-27	Clay loam	CL	A-6	0	0	90-100	85-99	75-9
	27-60	Loam	CL-ML, CL, SC-SM	A-4	0-1	0-3	90-100	85-99	73-9
618C3:									
Senachwine------	0-4	Clay loam	CL, ML	A-6	0	0	100	90-100	83-9
	4-33	Clay loam	CL, ML	A-6	0	0	90-100	85-99	75-9
	33-60	Loam	CL-ML, CL, ML, SC-SM	A-4	0-1	0-3	90-100	85-99	73-9
618D2:									
Senachwine------	0-6	Silt loam	CL, ML	A-6	0	0	95-100	95-100	90-10
	6-15	Silty clay loam, clay loam	CL	A-6	0	0	95-100	95-100	90-9
	15-28	Clay loam	CL	A-6	0	0	90-100	85-99	75-9
	28-34	Loam, clay loam	CL, SC	A-6, A-4	0	0-2	90-100	85-99	72-9
	34-60	Loam	CL-ML, CL, SC-SM	A-4	0-1	0-3	90-100	85-99	73-9

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passi sieve number--: 4	10	40
	In				Pct	Pct			
618D3:									
Senachwine------	0-3	Clay loam	CL, ML	A-6	0	0	100	90-100	83-95
	3-25	Clay loam	CL, ML	A-6	0	0	90-100	85-99	75-95
	25-60	Loam	CL-ML, CL, ML, SC-SM	A-4	0-1	0-3	90-100	85-99	73-95
618F:									
Senachwine------	0-11	Silt loam	CL-ML, CL, ML	A-4	0	0	95-100	90-100	75-10
	11-17	Silty clay loam, clay loam	CL, ML	A-6	0	0	90-100	85-99	75-95
	17-32	Clay loam	CL	A-6	0	0	90-100	85-99	75-95
	32-40	Loam, clay loam	CL, SC	A-6, A-4	0	0-2	90-100	85-99	70-90
	40-60	Loam	CL-ML, CL, SC-SM	A-4	0-1	0-3	90-100	85-99	70-90
618G:									
Senachwine------	0-5	Silt loam	CL-ML, CL	A-4	0	0	95-100	90-100	75-10
	5-11	Silt loam	CL-ML, CL	A-4	0	0	95-100	90-100	80-10
	11-30	Clay loam, silty clay loam	CL	A-7-6, A-6	0	0	90-100	85-99	75-95
	30-38	Clay loam, loam	CL, ML, SC,	A-6	0	0-2	90-100	85-99	70-90
	38-60	Loam	CL-ML, CL, SC, SC-SM	A-4, A-6	0-1	0-3	90-100	85-99	70-90
668B2:									
Somonauk--------	0-6	Silt loam	CL, ML	A-4, A-6	0	0	100	97-100	95-10
	6-33	Silty clay loam, silt loam	CL, ML	A-7-6, A-6	0	0	100	97-100	95-10
	33-55	Clay loam, loam, sandy clay loam, sandy loam	CL, SC	A-4, A-6	0	0	95-100	85-100	60-10
	55-68	Sandy loam, sandy clay loam, loam	CL, SC	A-4, A-6	0	0	92-100	85-100	45-95
	68-80	Stratified sand to silt loam	SM, SC-SM, SW-SM, SW-SC, ML, CL-ML	A-4, A-2-4, A-1-b	0	0	92-100	80-100	35-95
722A:									
Drummer---------	0-14	Silty clay loam	CL, ML	A-7-6, A-7-5	0	0	100	97-100	95-10
	14-41	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-10
	41-47	Loam	CL	A-6, A-4	0	0	95-100	90-100	75-95
	47-60	Stratified loam to sandy loam	SC, CL, CL-ML, SC-SM	A-4, A-2-4	0	0	95-100	80-100	55-95

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage pas sieve number: 4	10	40
	In				Pct	Pct			
722A:									
Milford---------	0-14	Silty clay loam	CL, ML, MH, CH	A-7-6, A-7-5	0	0	100	97-100	95-1
	14-25	Silty clay, silty clay loam	CH, MH, CL, ML	A-7-6, A-7-5	0	0	100	95-100	90-1
	25-45	Silty clay loam	CL	A-6	0	0	95-100	85-97	80-9
	45-80	Stratified silt loam	CL, CL-ML	A-4, A-6	0	0	90-100	80-100	75-9
830.									
Landfill									
864.									
Pits, quarry									
865.									
Pits, gravel									
871B:									
Lenzburg--------	0-8	Gravelly loam	SC, CL	A-4, A-6	0-2	4-15	60-99	60-80	40-8
	8-60	Clay loam, loam	CL, SC	A-6, A-4	0-2	0-5	86-98	84-97	67-9
871D:									
Lenzburg--------	0-8	Loam	SC, CL	A-6, A-4	0-2	0-5	85-99	80-97	65-9
	8-60	Clay loam, loam	CL, SC	A-6, A-4	0-2	0-5	85-98	84-97	67-9
3073A:									
Ross------------	0-13	Silt loam	CL, CL-ML, ML	A-4	0	0	90-100	90-100	80-1
	13-43	Loam, silt loam	CL-ML, ML, CL	A-4, A-6	0	0	90-100	85-100	70-1
	43-60	Stratified sandy loam to silt loam	SC-SM, SM, SC, CL-ML, CL, ML	A-2-4, A-4	0	0-5	85-100	75-100	65-1
3107A:									
Sawmill---------	0-10	Silty clay loam	CL, ML	A-7-6	0	0	100	100	95-1
	10-32	Silty clay loam	CL	A-7-6	0	0	100	100	95-1
	32-58	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	90-1
	58-65	Silty clay loam, clay loam	CL	A-7-6, A-6	0	0	100	97-100	90-1

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40
	In				Pct	Pct			
3226A:									
Wirt------------	0-3	Silt loam	CL-ML, CL	A-4	0	0	100	95-100	80-100
	3-32	Silt loam, loam, fine sandy loam	SM, CL-ML, ML, SC-SM	A-4	0	0	97-100	80-100	65-100
	32-60	Stratified silt loam to loam to sandy loam	SM, CL-ML, ML, SC-SM	A-2-4, A-4, A-1-b	0	0-1	90-100	75-100	40-100
3284A:									
Tice------------	0-21	Silty clay loam	CL, ML	A-7-6, A-6	0	0	100	100	95-100
	21-66	Silty clay loam, silt loam	CL, ML	A-7-6, A-6	0	0	100	100	85-100
	66-80	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	80-90
3304A:									
Landes----------	0-18	Fine sandy loam	SC, SC-SM, SM	A-2-4, A-4	0	0	90-100	85-100	65-100
	18-24	Loam, fine sandy loam	SC-SM, SM, CL-ML, SC, CL, ML	A-4	0	0	90-100	85-100	70-100
	24-60	Stratified fine sand to fine sandy loam	SP-SM, SM, SC-SM	A-2-4, A-4	0	0	100	85-100	70-100
3424A:									
Shoals----------	0-8	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	99-100	95-100	86-100
	8-60	Stratified loam to silt loam	CL, ML	A-6, A-4	0	0	99-100	95-100	85-100
3450A:									
Brouillett------	0-11	Silt loam	CL, ML	A-4, A-6	0	0	90-100	90-100	80-100
	11-26	Silt loam, loam	CL	A-4, A-6	0	0	90-100	90-100	80-100
	26-42	Silt loam, loam	CL	A-4, A-6	0	0	90-100	90-100	80-100
	42-60	Stratified sandy loam to silt loam	CL, SC, CL-ML, SC-SM, ML, SM	A-4, A-6	0	0	85-100	85-100	56-100
3451A:									
Lawson----------	0-8	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	100	97-100	95-100
	8-35	Silt loam, silty clay loam	CL, ML, CL-ML	A-4, A-6	0	0	100	97-100	95-100
	35-80	Stratified silt loam to loam, silty clay loam	CL	A-6	0	0	100	95-100	85-100

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40
	In				Pct	Pct			
7132A:									
Starks----------	0-8	Silt loam	CL, CL-ML, ML	A-4	0	0	100	95-100	90-10[illegible]
	8-13	Silt loam	CL, CL-ML, ML	A-6, A-4	0	0	100	100	95-10[illegible]
	13-36	Silty clay loam	CL	A-7-6, A-6	0	0	100	97-100	95-10[illegible]
	36-44	Sandy loam, sandy clay loam	SC, SM, CL, SC-SM, CL-ML	A-4, A-6, A-2-4, A-2-6	0	0	100	90-100	55-10[illegible]
	44-60	Stratified sandy loam to loam to sandy clay loam	SC, SC-SM, SM, CL-ML, CL, ML	A-2-4, A-4	0	0	85-100	75-100	40-10[illegible]
7373B:									
Camden----------	0-7	Silt loam	CL, CL-ML, ML	A-4	0	0	100	95-100	90-10[illegible]
	7-10	Silt loam	CL, CL-ML, ML	A-6, A-4	0	0	100	100	95-10[illegible]
	10-29	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	95-10[illegible]
	29-45	Clay loam, loam, sandy loam	CL, SC	A-6	0	0	95-100	85-100	70-99
	45-66	Stratified fine sandy loam to loamy sand	SC, SC-SM, SM	A-4, A-2-4	0	0	95-100	80-100	50-98
	66-80	Stratified sand to loamy sand	SM, SP-SM	A-2-4, A-3	0	0	90-100	80-100	50-95
7570B:									
Martinsville----	0-9	Silt loam	ML, CL-ML	A-4	0	0	100	85-100	70-10[illegible]
	9-12	Silt loam	ML, CL-ML, CL	A-4	0	0	100	85-100	70-10[illegible]
	12-45	Clay loam, loam, sandy clay loam	CL, SC	A-4, A-6	0	0	95-100	85-100	60-10[illegible]
	45-57	Sandy loam, sandy clay loam, loam	CL, SC	A-4, A-6	0	0	92-100	85-100	45-95
	57-80	Stratified sand to silt loam	SM, SC-SM, ML, CL-ML, SW-SM	A-4, A-2-4, A-1-b	0	0	92-100	85-100	40-95

Table 19.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind
apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion Kw
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct	
2A:										
Cisne----------------	0-8	1-10	70-83	10-20	1.30-1.50	0.6-2	0.17-0.23	0.0-2.9	1.5-3.5	.37
	8-17	0-10	70-87	10-20	1.40-1.60	0.2-0.6	0.18-0.24	0.0-2.9	0.3-0.8	.64
	17-37	0-10	50-65	35-45	1.30-1.50	0.02-0.2	0.09-0.15	6.0-8.9	0.2-0.5	.37
	37-60	15-30	38-61	20-35	1.50-1.70	0.06-0.2	0.12-0.16	3.0-5.9	0.0-0.5	.43
	60-80	15-35	31-62	20-35	1.50-1.70	0.2-0.6	0.12-0.16	0.0-2.9	0.0-0.3	.43
3A:										
Hoyleton------------	0-8	1-16	57-87	12-27	1.30-1.50	0.6-2	0.19-0.25	0.0-2.9	1.5-3.5	.37
	8-11	1-16	57-81	18-27	1.30-1.50	0.2-0.6	0.16-0.22	0.0-2.9	0.3-0.8	.55
	11-39	1-10	45-64	35-45	1.30-1.50	0.06-0.6	0.11-0.17	6.0-8.9	0.2-0.5	.37
	39-80	6-40	25-75	19-35	1.40-1.60	0.2-0.6	0.15-0.18	0.0-5.9	0.0-0.3	.43
13A:										
Bluford-------------	0-7	5-12	70-79	10-18	1.30-1.50	0.6-2	0.19-0.25	0.0-2.9	1.0-2.5	.43
	7-20	5-10	70-80	15-25	1.35-1.55	0.2-0.6	0.20-0.26	0.0-2.9	0.2-0.8	.55
	20-35	0-8	50-64	35-45	1.30-1.50	0.06-0.6	0.11-0.17	6.0-8.9	0.2-0.5	.32
	35-60	15-30	40-64	20-35	1.50-1.70	0.06-0.2	0.08-0.12	3.0-5.9	0.0-0.3	.43
13B:										
Bluford-------------	0-7	5-12	70-79	10-18	1.30-1.50	0.6-2	0.19-0.25	0.0-2.9	1.0-2.5	.43
	7-20	5-10	70-80	15-25	1.35-1.55	0.2-0.6	0.20-0.25	0.0-2.9	0.2-1.5	.55
	20-35	0-8	50-64	35-45	1.30-1.50	0.2-0.6	0.11-0.17	6.0-8.9	0.2-0.5	.32
	35-60	15-30	40-64	20-35	1.50-1.70	0.06-0.2	0.08-0.12	3.0-5.9	0.0-0.3	.43
48A:										
Ebbert--------------	0-13	1-10	67-82	15-25	1.30-1.50	0.6-2	0.19-0.25	0.0-2.9	2.0-4.0	.32
	13-22	1-13	65-80	15-25	1.35-1.55	0.2-0.6	0.16-0.22	0.0-2.9	1.0-3.0	.55
	22-48	1-12	54-71	27-35	1.35-1.55	0.06-0.2	0.13-0.19	3.0-5.9	0.5-1.5	.43
	48-60	10-25	50-68	20-30	1.45-1.65	0.2-0.6	0.15-0.20	0.0-5.9	0.0-0.5	.43
56B:										
Dana----------------	0-11	2-15	58-80	18-27	1.25-1.50	0.6-2	0.15-0.21	0.0-2.9	3.0-5.0	.28
	11-32	2-15	50-70	27-35	1.25-1.55	0.6-2	0.13-0.19	3.0-5.9	0.5-1.5	.37
	32-58	20-40	25-53	27-35	1.40-1.70	0.6-2	0.15-0.19	3.0-5.9	0.2-0.8	.32
	58-80	20-45	25-50	15-30	1.65-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.3	.37
56B2:										
Dana----------------	0-7	2-15	58-78	20-27	1.40-1.60	0.6-2	0.16-0.21	0.0-2.9	1.5-3.5	.37
	7-34	2-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.5-1.5	.37
	34-53	20-40	25-53	27-35	1.50-1.70	0.6-2	0.12-0.17	3.0-5.9	0.1-0.5	.32
	53-60	30-45	28-50	15-27	1.65-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.37

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion
										Kw
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct	
132A:										
Starks-------------	0-8	2-15	58-82	15-27	1.25-1.50	0.6-2	0.19-0.25	0.0-2.9	1.0-2.5	.43
	8-13	2-15	58-82	15-27	1.35-1.55	0.2-0.6	0.16-0.22	0.0-2.9	0.3-0.8	.49
	13-36	2-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.2-0.5	.37
	36-44	45-65	15-35	10-30	1.45-1.65	0.6-2	0.13-0.17	0.0-5.9	0.2-0.5	.24
	44-60	45-70	10-35	5-20	1.50-1.70	0.6-2	0.08-0.15	0.0-2.9	0.1-0.3	.28
136A:										
Brooklyn-----------	0-9	2-14	65-82	15-22	1.30-1.50	0.6-2	0.19-0.25	0.0-2.9	1.5-3.5	.37
	9-14	2-15	71-82	14-22	1.35-1.55	0.2-0.6	0.20-0.26	0.0-2.9	0.2-0.8	.55
	14-40	0-10	47-63	35-45	1.30-1.50	0.06-0.2	0.11-0.17	6.0-8.9	0.1-0.5	.37
	40-62	20-44	23-52	27-40	1.50-1.70	0.2-0.6	0.12-0.18	3.0-5.9	0.1-0.5	.28
	62-73	29-61	28-44	10-27	1.55-1.75	0.6-2	0.11-0.15	0.0-2.9	0.1-0.3	.37
	73-80	24-54	29-50	10-27	1.70-1.90	0.06-0.2	0.08-0.12	0.0-2.9	0.1-0.3	.37
138A:										
Shiloh-------------	0-19	1-17	47-64	35-40	1.25-1.45	0.2-0.6	0.12-0.18	6.0-8.9	3.0-5.0	.24
	19-48	1-17	40-64	35-45	1.30-1.50	0.2-0.6	0.11-0.17	6.0-8.9	1.0-3.5	.32
	48-68	1-15	43-66	33-45	1.35-1.55	0.06-0.2	0.11-0.18	6.0-8.9	0.2-1.0	.37
	68-80	10-33	30-53	35-50	1.40-1.60	0.06-0.2	0.10-0.16	6.0-8.9	0.2-1.0	.28
148B:										
Proctor------------	0-13	1-9	64-71	18-27	1.10-1.30	0.6-2	0.15-0.21	0.0-2.9	2.0-4.0	.28
	13-25	1-9	56-74	25-35	1.20-1.45	0.6-2	0.13-0.19	3.0-5.9	0.5-2.0	.37
	25-45	20-55	23-50	18-32	1.30-1.55	0.6-2	0.13-0.16	0.0-2.9	0.2-0.8	.37
	45-60	30-50	35-55	5-20	1.40-1.70	0.6-6	0.07-0.19	0.0-2.9	0.1-0.5	.37
149A:										
Brenton------------	0-14	2-15	58-82	15-27	1.25-1.45	0.6-2	0.16-0.22	0.0-2.9	3.5-5.0	.28
	14-33	2-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.5-1.5	.37
	33-45	40-55	30-45	15-27	1.50-1.70	0.6-2	0.13-0.17	0.0-2.9	0.2-0.5	.32
	45-80	15-50	28-65	10-27	1.45-1.65	0.6-2	0.11-0.14	0.0-2.9	0.1-0.5	.32
152A:										
Drummer------------	0-14	3-15	50-70	27-35	1.20-1.40	0.6-2	0.12-0.18	3.0-5.9	4.5-7.0	.24
	14-41	3-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.8-2.0	.37
	41-47	25-45	28-50	20-27	1.45-1.65	0.6-2	0.11-0.17	0.0-2.9	0.2-0.5	.32
	47-60	45-65	25-45	10-20	1.55-1.75	0.6-2	0.11-0.17	0.0-2.9	0.1-0.3	.24
154A:										
Flanagan-----------	0-18	2-7	66-78	20-27	1.25-1.45	0.6-2	0.16-0.22	0.0-2.9	3.5-5.0	.28
	18-38	2-7	53-63	35-40	1.30-1.50	0.2-0.6	0.11-0.17	6.0-8.9	0.5-1.8	.37
	38-45	3-15	50-72	25-35	1.30-1.50	0.6-2	0.13-0.19	3.0-5.9	0.1-0.5	.37
	45-49	15-30	45-65	20-27	1.40-1.60	0.6-2	0.13-0.19	0.0-2.9	0.1-0.5	.37
	49-60	30-50	28-50	10-27	1.65-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.5	.37

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct	
206A:										
Thorp---------------	0-14	0-10	63-80	20-27	1.15-1.35	0.6-2	0.16-0.22	0.0-2.9	4.0-6.0	.28
	14-19	0-10	65-82	18-25	1.30-1.50	0.2-0.6	0.16-0.22	0.0-2.9	0.2-1.0	.43
	19-43	0-10	55-78	22-35	1.35-1.55	0.06-0.2	0.13-0.19	3.0-5.9	0.2-1.0	.37
	43-50	10-55	15-72	18-30	1.40-1.60	0.6-2	0.10-0.20	0.0-5.9	0.2-0.5	.32
	50-65	50-75	10-40	5-20	1.50-1.70	0.6-6	0.05-0.13	0.0-2.9	0.0-0.1	.24
219A:										
Millbrook-----------	0-7	1-10	71-87	12-20	1.30-1.50	0.6-2	0.19-0.25	0.0-2.9	1.5-3.5	.37
	7-14	2-9	72-85	12-20	1.40-1.60	0.2-0.6	0.20-0.26	0.0-2.9	0.3-0.8	.64
	14-35	1-10	57-77	20-35	1.30-1.50	0.6-2	0.13-0.19	3.0-5.9	0.2-0.5	.43
	35-55	35-53	16-42	21-33	1.40-1.60	0.6-2	0.13-0.17	3.0-5.9	0.1-0.5	.24
	55-80	55-69	11-32	12-20	1.45-1.65	0.6-2	0.11-0.15	0.0-2.9	0.1-0.3	.24
244A:										
Hartsburg-----------	0-17	2-7	58-71	27-35	1.20-1.40	0.6-2	0.12-0.18	3.0-5.9	4.5-6.0	.24
	17-34	2-7	58-71	25-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.5-2.0	.37
	34-60	3-15	66-82	15-27	1.45-1.65	0.6-2	0.16-0.22	0.0-2.9	0.1-0.5	.49
291B:										
Xenia---------------	0-4	2-15	58-82	15-27	1.25-1.50	0.6-2	0.19-0.25	0.0-2.9	1.0-2.5	.43
	4-16	2-15	58-82	15-27	1.35-1.55	0.6-2	0.16-0.22	0.0-2.9	0.3-0.8	.49
	16-37	2-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.2-0.5	.37
	37-57	20-40	25-53	24-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.28
	57-72	30-50	30-50	12-20	1.65-1.95	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.3	.37
322B:										
Russell-------------	0-6	2-15	58-82	15-27	1.25-1.50	0.6-2	0.19-0.25	0.0-2.9	1.0-3.0	.43
	6-13	2-15	58-82	15-27	1.35-1.55	0.2-0.6	0.16-0.22	0.0-2.9	0.5-1.0	.49
	13-28	3-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.1-0.5	.37
	28-47	20-40	25-53	24-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.28
	47-80	30-50	30-50	12-20	1.65-1.95	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.3	.37
322C2:										
Russell-------------	0-7	3-15	58-77	20-27	1.40-1.60	0.6-2	0.15-0.21	0.0-2.9	0.5-2.0	.43
	7-27	3-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.1-0.5	.43
	27-56	20-40	27-53	27-33	1.50-1.70	0.6-2	0.12-0.16	3.0-5.9	0.1-0.5	.24
	56-72	30-50	28-50	12-27	1.65-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.3	.37
330A:										
Peotone-------------	0-6	2-7	53-63	35-40	1.25-1.45	0.2-0.6	0.12-0.18	6.0-8.9	4.5-7.0	.24
	6-28	2-7	53-63	35-40	1.35-1.55	0.2-0.6	0.12-0.18	6.0-8.9	2.0-4.0	.32
	28-44	3-15	53-62	35-40	1.30-1.50	0.2-0.6	0.11-0.17	6.0-8.9	1.5-3.5	.32
	44-60	3-15	53-70	27-40	1.30-1.50	0.2-0.6	0.11-0.18	3.0-8.9	0.1-1.0	.37

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion Kw
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct	
348B:										
Wingate-------------	0-9	2-15	58-82	15-27	1.25-1.50	0.6-2	0.19-0.25	0.0-2.9	2.0-4.0	.37
	9-12	2-15	58-82	15-27	1.35-1.55	0.6-2	0.16-0.22	0.0-2.9	0.5-2.0	.49
	12-27	2-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.2-0.8	.37
	27-52	20-40	25-53	24-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.32
	52-60	30-50	28-50	15-22	1.75-1.95	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.3	.37
353A:										
Toronto-------------	0-9	2-15	58-82	15-27	1.25-1.50	0.6-2	0.19-0.25	0.0-2.9	2.0-4.0	.37
	9-12	2-15	58-82	15-27	1.35-1.55	0.6-2	0.16-0.22	0.0-2.9	0.5-2.0	.49
	12-26	2-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.2-0.8	.37
	26-54	20-40	25-53	24-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.32
	54-60	30-45	28-50	15-27	1.75-1.95	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.3	.37
481A:										
Raub----------------	0-18	2-15	58-82	15-27	1.30-1.50	0.6-2	0.16-0.22	0.0-2.9	3.5-5.0	.28
	18-32	2-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.5-1.5	.37
	32-50	20-35	30-53	26-35	1.50-1.70	0.6-2	0.12-0.16	3.0-5.9	0.2-0.5	.32
	50-60	30-50	28-50	20-30	1.65-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.5	.37
496A:										
Fincastle-----------	0-8	2-7	66-83	15-27	1.35-1.55	0.6-2	0.19-0.25	0.0-2.9	1.0-2.5	.43
	8-11	3-15	58-82	15-27	1.40-1.60	0.2-0.6	0.16-0.22	0.0-2.9	0.1-1.0	.55
	11-32	3-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.1-0.5	.37
	32-40	20-40	28-53	27-32	1.50-1.70	0.6-2	0.12-0.16	3.0-5.9	0.1-0.5	.32
	40-50	25-40	32-53	18-28	1.50-1.70	0.6-2	0.12-0.16	0.0-5.9	0.1-0.5	.32
	50-80	30-50	30-50	10-20	1.70-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.37
533.										
Urban land										
570B:										
Martinsville--------	0-9	12-40	50-79	8-20	1.40-1.60	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.37
	9-12	12-40	50-79	8-20	1.35-1.55	0.6-2	0.17-0.21	0.0-2.9	0.1-1.0	.55
	12-45	20-50	20-50	20-33	1.50-1.70	0.6-2	0.11-0.15	3.0-5.9	0.1-0.5	.32
	45-57	26-60	17-50	15-25	1.55-1.75	0.6-2	0.12-0.16	0.0-2.9	0.1-0.3	.32
	57-80	35-95	12-50	5-15	1.55-1.75	2-6	0.09-0.13	0.0-2.9	0.1-0.2	.28
570C2:										
Martinsville--------	0-9	30-50	35-50	12-20	1.40-1.60	0.6-2	0.13-0.17	0.0-2.9	1.0-2.0	.32
	9-45	20-50	20-50	20-33	1.50-1.70	0.6-2	0.11-0.15	3.0-5.9	0.1-0.5	.32
	45-57	26-60	17-50	15-25	1.55-1.75	0.6-2	0.12-0.16	0.0-2.9	0.1-0.3	.32
	57-80	45-95	12-50	5-15	1.55-1.75	0.6-6	0.09-0.13	0.0-2.9	0.1-0.2	.28

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion Kw
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct	
618C2:										
Senachwine----------	0-6	15-20	53-65	20-27	1.35-1.55	0.6-2	0.18-0.20	0.0-2.9	0.5-2.0	.43
	6-12	15-21	45-58	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.32
	12-27	20-40	25-53	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.28
	27-60	30-50	30-50	10-20	1.65-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.3	.37
618C3:										
Senachwine----------	0-4	20-40	25-53	27-35	1.45-1.65	0.6-2	0.18-0.20	3.0-5.9	0.3-1.0	.32
	4-33	20-40	25-53	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.24
	33-60	30-50	30-50	10-20	1.65-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.37
618D2:										
Senachwine----------	0-6	15-20	53-65	20-27	1.35-1.55	0.6-2	0.18-0.20	0.0-2.9	0.5-2.0	.43
	6-15	15-21	45-58	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.32
	15-28	20-40	25-53	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.28
	28-34	30-50	28-50	20-27	1.45-1.65	0.6-2	0.11-0.14	0.0-2.9	0.1-0.5	.28
	34-60	30-50	30-50	10-20	1.65-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.3	.37
618D3:										
Senachwine----------	0-3	20-40	25-53	27-35	1.45-1.65	0.6-2	0.18-0.20	3.0-5.9	0.3-1.0	.24
	3-25	20-40	25-53	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.24
	25-60	30-50	30-50	10-20	1.65-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.37
618F:										
Senachwine----------	0-11	15-40	50-72	10-20	1.40-1.60	0.6-2	0.16-0.22	0.0-2.9	1.0-2.5	.37
	11-17	15-40	25-53	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.3-0.8	.32
	17-32	20-40	25-53	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.24
	32-40	30-50	28-50	20-27	1.45-1.65	0.6-2	0.11-0.14	0.0-2.9	0.1-0.5	.32
	40-60	30-50	30-50	10-20	1.65-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.1-0.3	.37
618G:										
Senachwine----------	0-5	15-40	50-72	10-20	1.40-1.60	0.6-2	0.16-0.22	0.0-2.9	1.0-2.5	.37
	5-11	15-40	50-74	10-20	1.40-1.60	0.6-2	0.16-0.22	0.0-2.9	0.3-0.8	.49
	11-30	15-40	25-53	27-35	1.45-1.65	0.6-2	0.14-0.17	3.0-5.9	0.1-0.5	.28
	30-38	30-50	28-50	20-30	1.45-1.65	0.6-2	0.11-0.14	0.0-2.9	0.1-0.5	.32
	38-60	30-50	30-50	10-20	1.65-1.85	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.37
668B2:										
Somonauk------------	0-6	2-15	58-82	15-27	1.25-1.50	0.6-2	0.15-0.21	0.0-2.9	1.0-3.0	.43
	6-33	3-15	50-72	25-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.1-0.5	.37
	33-55	20-55	20-50	18-30	1.50-1.70	0.6-2	0.11-0.15	0.0-5.9	0.1-0.5	.32
	55-68	30-60	17-50	15-25	1.55-1.75	0.6-2	0.12-0.16	0.0-2.9	0.1-0.3	.32
	68-80	35-95	5-50	5-20	1.55-1.75	0.6-6	0.09-0.13	0.0-2.9	0.1-0.2	.28

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion
										Kw
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct	
722A:										
Drummer-------------	0-14	3-15	50-70	27-35	1.20-1.40	0.6-2	0.12-0.18	3.0-5.9	4.5-7.0	.24
	14-41	3-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.5-2.0	.37
	41-47	25-45	28-50	20-27	1.45-1.65	0.6-2	0.11-0.17	0.0-2.9	0.2-0.5	.32
	47-60	45-65	25-45	10-20	1.55-1.75	0.6-2	0.11-0.17	0.0-2.9	0.1-0.5	.24
Milford-------------	0-14	2-15	45-63	35-40	1.30-1.50	0.2-0.6	0.12-0.18	6.0-8.9	4.5-6.0	.24
	14-25	3-15	40-62	35-45	1.35-1.55	0.2-0.6	0.11-0.17	6.0-8.9	1.0-2.0	.32
	25-45	5-20	45-68	27-35	1.50-1.70	0.6-2	0.13-0.19	3.0-5.9	0.1-0.5	.37
	45-80	15-30	50-65	20-27	1.50-1.70	0.6-2	0.09-0.14	0.0-2.9	0.1-0.5	.43
830:										
Landfill------------	---	---	---	---	---	---	---	---	---	---
864.										
Pits, quarry										
865:										
Pits, gravel--------	---	---	---	---	---	---	---	---	---	---
871B:										
Lenzburg------------	0-8	25-50	30-50	18-27	1.30-1.60	0.6-2	0.11-0.15	0.0-2.9	0.5-2.0	.20
	8-60	25-50	30-50	18-30	1.65-1.85	0.2-0.6	0.11-0.15	0.0-2.9	0.1-0.3	.28
871D:										
Lenzburg------------	0-8	25-50	30-50	18-27	1.30-1.60	0.6-2	0.11-0.15	0.0-2.9	0.5-2.0	.20
	8-60	25-50	30-50	18-30	1.65-1.85	0.2-0.6	0.11-0.15	0.0-2.9	0.1-0.3	.28
3073A:										
Ross----------------	0-13	20-45	50-65	15-27	1.20-1.45	0.6-2	0.17-0.22	0.0-2.9	2.0-4.0	.32
	13-43	20-45	28-62	18-27	1.20-1.50	0.6-2	0.14-0.18	0.0-2.9	1.0-3.0	.28
	43-60	40-70	10-55	5-20	1.35-1.60	0.6-6	0.05-0.18	0.0-2.9	0.5-1.0	.28
3107A:										
Sawmill-------------	0-10	3-15	58-70	27-35	1.25-1.45	0.6-2	0.12-0.18	3.0-5.9	4.5-7.0	.28
	10-32	3-15	58-70	27-35	1.25-1.45	0.6-2	0.12-0.18	3.0-5.9	4.5-7.0	.28
	32-58	5-20	45-68	27-35	1.30-1.50	0.6-2	0.12-0.18	3.0-5.9	1.5-3.5	.32
	58-65	5-25	40-70	25-35	1.30-1.50	0.6-2	0.12-0.18	3.0-5.9	0.8-3.5	.32
3226A:										
Wirt----------------	0-3	15-40	50-72	7-18	1.20-1.60	0.6-2	0.12-0.17	0.0-2.9	1.0-3.0	.43
	3-32	18-62	30-72	5-18	1.55-1.75	0.6-2	0.10-0.15	0.0-2.9	0.5-1.0	.49
	32-60	20-80	10-72	5-18	1.55-1.75	0.6-6	0.04-0.11	0.0-2.9	0.3-0.8	.32

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion Kw
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct	
3284A:										
Tice----------------	0-21	3-15	58-70	27-35	1.25-1.45	0.6-2	0.12-0.18	3.0-5.9	2.0-4.0	.28
	21-66	5-20	45-68	22-35	1.30-1.50	0.6-2	0.13-0.19	3.0-5.9	0.5-1.0	.37
	66-80	15-30	50-65	20-27	1.50-1.70	0.6-2	0.09-0.14	0.0-2.9	0.1-0.5	.43
3304A:										
Landes--------------	0-18	52-70	16-36	2-20	1.45-1.70	2-6	0.10-0.14	0.0-2.9	1.0-3.5	.20
	18-24	32-60	22-50	2-18	1.60-1.70	2-6	0.12-0.15	0.0-2.9	0.5-1.5	.32
	24-60	70-90	3-22	2-17	1.60-1.80	6-20	0.06-0.10	0.0-2.9	0.1-1.0	.15
3424A:										
Shoals--------------	0-8	10-30	50-75	15-25	1.35-1.55	0.6-2	0.17-0.21	0.0-2.9	1.0-2.5	.37
	8-60	20-38	35-60	18-27	1.50-1.70	0.6-2	0.12-0.17	0.0-2.9	0.3-1.0	.43
3450A:										
Brouillett----------	0-11	15-30	50-67	18-27	1.35-1.55	0.6-2	0.14-0.18	0.0-2.9	3.5-5.0	.32
	11-26	15-30	45-67	18-27	1.35-1.55	0.6-2	0.14-0.18	0.0-2.9	1.5-3.0	.32
	26-42	15-30	45-67	18-27	1.35-1.55	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.37
	42-60	15-50	30-70	10-25	1.35-1.55	0.6-6	0.12-0.16	0.0-2.9	0.5-2.0	.37
3451A:										
Lawson--------------	0-8	3-15	58-79	18-27	1.25-1.45	0.6-2	0.16-0.22	0.0-2.9	3.5-7.0	.32
	8-35	3-15	58-79	18-30	1.30-1.50	0.6-2	0.16-0.22	0.0-2.9	3.0-5.0	.32
	35-80	15-30	45-65	20-30	1.40-1.60	0.6-2	0.18-0.20	0.0-2.9	0.5-1.0	.37
7132A:										
Starks--------------	0-8	10-23	58-78	10-20	1.35-1.55	0.6-2	0.19-0.25	0.0-2.9	1.0-3.0	.43
	8-13	2-15	65-85	10-20	1.35-1.55	0.2-0.6	0.20-0.23	0.0-2.9	0.5-1.0	.55
	13-36	2-15	50-70	27-35	1.35-1.55	0.6-2	0.13-0.19	3.0-5.9	0.2-0.8	.37
	36-44	45-65	15-35	10-30	1.45-1.65	2-6	0.13-0.17	0.0-5.9	0.2-0.5	.24
	44-60	45-70	10-35	5-20	1.50-1.70	2-6	0.08-0.15	0.0-2.9	0.1-0.5	.24
7373B:										
Camden--------------	0-7	10-23	58-78	10-20	1.35-1.55	0.6-2	0.19-0.25	0.0-2.9	1.0-3.0	.43
	7-10	2-15	65-85	10-20	1.35-1.55	0.2-0.6	0.20-0.26	0.0-2.9	0.5-1.0	.55
	10-29	2-10	55-76	22-35	1.30-1.50	0.6-2	0.13-0.19	3.0-5.9	0.1-0.5	.37
	29-45	25-54	28-50	18-30	1.45-1.65	0.6-2	0.11-0.18	0.0-5.9	0.1-0.5	.37
	45-66	52-85	5-40	1-18	1.50-1.70	2-6	0.12-0.16	0.0-2.9	0.1-0.3	.24
	66-80	75-93	2-19	1-10	1.60-1.80	6-20	0.07-0.11	0.0-2.9	0.0-0.3	.10

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion
										Kw
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct	
7570B:										
Martinsville--------	0-9	12-40	50-79	8-20	1.40-1.60	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.32
	9-12	12-40	50-79	8-20	1.35-1.55	0.6-2	0.17-0.21	0.0-2.9	0.1-1.0	.55
	12-45	20-50	20-50	20-33	1.50-1.70	0.6-2	0.11-0.15	3.0-5.9	0.1-0.5	.32
	45-57	26-60	17-50	15-25	1.55-1.75	0.6-2	0.12-0.16	0.0-2.9	0.1-0.3	.32
	57-80	35-95	12-50	5-15	1.55-1.75	2-6	0.09-0.13	0.0-2.9	0.1-0.2	.28

Table 20.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
2A:					
Cisne	0-8	9.0-17	---	5.1-7.3	0
	8-17	8.5-16	---	5.1-6.5	0
	17-37	---	17-22	4.5-6.0	0
	37-60	14-27	---	5.1-6.5	0
	60-80	14-26	---	5.6-7.3	0
3A:					
Hoyleton	0-8	11-23	---	4.5-7.3	0
	8-11	14-22	---	4.5-7.3	0
	11-39	---	17-22	4.5-5.5	0
	39-80	14-26	---	5.6-7.3	0
13A:					
Bluford	0-7	9.1-16	---	5.6-7.3	0
	7-20	---	7.8-17	4.5-6.0	0
	20-35	---	18-29	4.5-6.0	0
	35-60	---	10-23	4.5-6.0	0
13B:					
Bluford	0-7	9.1-16	---	5.6-7.3	0
	7-20	---	7.8-17	4.5-6.0	0
	20-35	---	18-29	4.5-6.0	0
	35-60	---	10-23	4.5-6.0	0
48A:					
Ebbert	0-13	13-21	---	5.1-7.3	0
	13-22	---	8.3-14	5.1-6.0	0
	22-48	21-28	---	4.5-6.5	0
	48-60	14-23	---	5.6-7.3	0
56B:					
Dana	0-11	17-26	---	5.6-7.3	0
	11-32	17-23	---	5.1-7.3	0
	32-58	14-19	---	5.6-7.8	0-5
	58-80	6.0-16	---	7.4-8.4	15-40
56B2:					
Dana	0-7	14-28	---	5.6-6.5	0
	7-34	18-27	---	5.1-7.3	0
	34-53	12-24	---	5.6-7.8	0-5
	53-60	4.0-16	---	7.4-8.4	15-40
132A:					
Starks	0-8	13-23	---	5.1-7.3	0
	8-13	12-22	---	5.1-7.3	0
	13-36	20-27	---	4.5-6.5	0
	36-44	8.3-23	---	5.1-7.3	0-5
	44-60	4.3-16	---	6.1-7.8	0-5
136A:					
Brooklyn	0-9	13-19	---	5.6-7.3	0
	9-14	11-18	---	4.5-7.3	0
	14-40	25-34	---	4.5-7.3	0
	40-62	20-30	---	5.1-7.8	0-5
	62-73	8.1-21	---	6.6-7.8	0-15
	73-80	8.1-21	---	7.4-8.4	5-40

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate
	In	meq/100 g	meq/100 g	pH	Pct
138A:					
Shiloh	0-19	29-33	---	6.1-7.3	0
	19-48	27-36	---	6.1-7.3	0
	48-68	24-34	---	6.1-7.3	0
	68-80	26-38	---	6.1-7.8	0
148B:					
Proctor	0-13	15-24	---	5.1-7.8	0
	13-25	16-25	---	5.6-7.3	0
	25-45	15-23	---	5.6-7.3	0
	45-60	4.0-12	---	6.1-7.8	0-10
149A:					
Brenton	0-14	13-23	---	5.6-6.5	0
	14-33	21-28	---	5.6-6.5	0
	33-45	12-21	---	6.1-7.3	0
	45-80	5.2-14	---	6.6-7.8	0-15
152A:					
Drummer	0-14	23-30	---	5.6-7.3	0
	14-41	22-28	---	6.1-7.3	0
	41-47	16-21	---	6.6-7.8	0-5
	47-60	8.1-16	---	7.4-8.4	0-15
154A:					
Flanagan	0-18	16-32	---	5.6-7.3	0
	18-38	22-35	---	5.6-7.3	0
	38-45	16-27	---	5.6-7.3	0
	45-49	6.0-18	---	6.1-7.8	0-10
	49-60	4.0-16	---	7.4-8.4	15-40
206A:					
Thorp	0-14	20-28	---	5.1-7.8	0
	14-19	11-17	---	5.1-7.3	0
	19-43	14-23	---	5.1-7.3	0
	43-50	11-19	---	5.6-7.8	0-5
	50-65	3.0-19	---	6.1-8.4	0-20
219A:					
Millbrook	0-7	11-17	---	5.6-7.3	0
	7-14	10.0-16	---	5.6-7.3	0
	14-35	16-27	---	5.1-6.5	0
	35-55	16-25	---	5.6-7.3	0
	55-80	9.3-16	---	6.6-8.4	0-10
244A:					
Hartsburg	0-17	27-40	---	6.1-7.8	0-5
	17-34	17-31	---	6.6-8.4	0-25
	34-60	9.0-23	---	7.4-8.4	15-40
291B:					
Xenia	0-4	13-23	---	5.6-7.3	0
	4-16	12-22	---	5.6-7.3	0
	16-37	20-27	---	5.1-7.3	0
	37-57	18-27	---	5.6-7.3	0-5
	57-72	9.3-16	---	7.4-8.4	15-40

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate
	In	meq/100 g	meq/100 g	pH	Pct
322B:					
Russell	0-6	14-24	---	5.1-7.3	0
	6-13	12-20	---	5.1-7.3	0
	13-28	---	13-17	4.5-6.0	0
	28-47	11-22	---	5.6-7.3	0-5
	47-80	4.0-13	---	7.4-8.4	15-40
322C2:					
Russell	0-7	13-24	---	5.6-6.5	0
	7-27	---	13-17	4.5-5.5	0
	27-56	11-22	---	5.6-7.3	0-5
	56-72	4.0-16	---	7.4-8.4	15-40
330A:					
Peotone	0-6	29-33	---	5.6-7.3	0
	6-28	28-33	---	5.6-7.8	0
	28-44	28-33	---	6.1-7.8	0
	44-60	20-31	---	6.6-8.4	0-15
348B:					
Wingate	0-9	14-24	---	5.6-7.3	0
	9-12	12-20	---	5.6-7.3	0
	12-27	18-27	---	5.1-7.3	0
	27-52	11-22	---	5.6-7.3	0-5
	52-60	4.0-13	---	6.6-8.4	15-40
353A:					
Toronto	0-9	14-24	---	5.6-7.3	0
	9-12	12-22	---	5.1-6.0	0
	12-26	---	13-18	4.5-7.3	0
	26-54	11-22	---	5.6-7.3	0-5
	54-60	4.0-13	---	7.4-8.4	15-40
481A:					
Raub	0-18	16-32	---	5.6-7.3	0
	18-32	18-27	---	5.1-6.5	0
	32-50	12-24	---	6.1-7.8	0-5
	50-80	4.0-16	---	7.4-8.4	15-40
496A:					
Fincastle	0-8	13-22	---	5.1-7.3	0
	8-11	12-22	---	5.1-6.5	0
	11-32	20-27	---	4.5-6.0	0
	32-40	20-25	---	5.1-6.5	0
	40-50	14-22	---	6.6-7.8	0-5
	50-80	7.6-16	---	7.4-8.4	15-40
533.					
Urban land					
570B:					
Martinsville	0-9	6.0-16	---	5.1-7.3	0
	9-12	---	3.1-7.7	5.1-7.3	0
	12-45	10-18	---	5.1-7.3	0
	45-57	7.8-13	---	5.1-7.8	0-15
	57-80	3.0-10	---	6.6-8.4	0-25
570C2:					
Martinsville	0-9	8.0-14	---	5.1-7.3	0
	9-45	8.0-18	---	5.1-7.3	0
	45-57	6.0-15	---	5.1-7.8	0-15
	57-80	3.0-10	---	6.6-8.4	0-25

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate
	In	meq/100 g	meq/100 g	pH	Pct
618C2:					
Senachwine-----------	0-6	11-15	---	5.6-7.3	0
	6-12	14-18	---	5.6-7.3	0
	12-27	14-18	---	5.1-7.3	0
	27-60	5.2-11	---	7.4-8.4	15-40
618C3:					
Senachwine-----------	0-4	14-19	---	5.6-7.3	0
	4-33	14-18	---	5.1-7.3	0
	33-60	5.1-11	---	7.4-8.4	15-40
618D2:					
Senachwine-----------	0-6	11-15	---	5.6-7.3	0
	6-15	14-18	---	5.6-7.3	0
	15-28	14-18	---	5.1-7.3	0
	28-34	10-14	---	5.1-7.3	0-5
	34-60	5.2-11	---	7.4-8.4	15-40
618D3:					
Senachwine-----------	0-3	14-19	---	5.6-7.3	0
	3-25	14-18	---	5.1-7.3	0
	25-60	5.1-11	---	7.4-8.4	15-40
618F:					
Senachwine-----------	0-11	8.0-19	---	5.6-7.3	0
	11-17	12-24	---	5.1-7.3	0
	17-32	14-18	---	5.1-7.3	0
	32-40	9.0-19	---	6.6-7.8	0-5
	40-60	4.0-13	---	7.4-8.4	15-40
618G:					
Senachwine-----------	0-5	8.0-19	---	5.6-7.3	0
	5-11	7.0-19	---	5.6-7.3	0
	11-30	---	9.1-15	5.1-7.3	0
	30-38	9.0-19	---	5.1-7.3	0-5
	38-60	4.0-13	---	7.4-8.4	15-40
668B2:					
Somonauk-------------	0-6	14-24	---	5.6-7.3	0
	6-33	---	13-18	5.1-7.3	0
	33-55	8.0-18	---	5.1-7.3	0
	55-68	6.0-15	---	6.6-7.8	0-5
	68-80	3.0-10	---	6.6-8.4	0-25
722A:					
Drummer--------------	0-14	27-40	---	5.6-7.3	0
	14-41	17-31	---	5.6-7.3	0
	41-47	9.0-19	---	6.1-7.8	0-5
	47-60	4.0-13	---	6.6-8.4	0-15
Milford--------------	0-14	29-33	---	5.6-7.3	0
	14-25	27-35	---	6.1-7.8	0
	25-45	20-27	---	6.1-7.8	0-15
	45-80	6.0-16	---	6.6-8.4	0-25
830.					
Landfill					
864.					
Pits, quarry					

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate
	In	meq/100 g	meq/100 g	pH	Pct
865. Pits, gravel					
871B:					
Lenzburg	0-8	12-18	---	6.6-8.4	0-20
	8-60	11-17	---	7.4-8.4	0-25
871D:					
Lenzburg	0-8	12-18	---	6.6-8.4	0-20
	8-60	11-17	---	7.4-8.4	0-25
3073A:					
Ross	0-13	13-23	---	6.1-7.3	0
	13-43	12-26	---	6.1-7.3	0
	43-60	4.6-17	---	6.1-7.8	0-1
3107A:					
Sawmill	0-10	23-36	---	6.1-7.8	0
	10-32	23-36	---	6.1-7.8	0
	32-58	18-34	---	6.1-7.8	0
	58-65	18-34	---	6.1-7.8	0-5
3226A:					
Wirt	0-3	6.4-16	---	5.6-7.3	0
	3-32	4.6-15	---	5.6-7.3	0
	32-60	4.6-15	---	5.6-7.3	0
3284A:					
Tice	0-21	22-32	---	6.1-7.3	0
	21-66	18-30	---	5.6-7.3	0
	66-80	4.0-16	---	6.6-7.8	0
3304A:					
Landes	0-18	5.0-15	---	6.1-7.3	0
	18-24	3.0-13	---	6.1-7.3	0
	24-60	1.5-11	---	6.1-7.8	0-15
3424A:					
Shoals	0-8	13-21	---	6.6-7.3	0
	8-60	14-22	---	6.6-7.8	0-5
3450A:					
Brouillett	0-11	16-23	---	6.1-7.8	0
	11-26	15-23	---	6.1-7.8	0
	26-42	15-22	---	6.1-7.8	0-3
	42-60	8.6-21	---	6.6-8.4	0-15
3451A:					
Lawson	0-8	13-34	---	6.1-7.3	0
	8-35	11-28	---	6.1-7.3	0
	35-80	13-26	---	6.1-7.8	0-3
7132A:					
Starks	0-8	7.0-18	---	5.1-7.3	0
	8-13	7.0-16	---	5.1-7.3	0
	13-36	20-27	---	4.5-6.5	0
	36-44	8.3-18	---	5.1-7.3	0-5
	44-60	2.0-19	---	6.1-7.8	0-5

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
7373B:					
Camden---------------	0-7	7.0-18	---	5.6-7.3	0
	7-10	7.0-16	---	5.1-7.3	0
	10-29	10-25	---	5.1-7.3	0
	29-45	9.0-19	---	5.1-6.5	0
	45-66	2.0-14	---	5.1-7.3	0-5
	66-80	3.3-8.5	---	5.6-7.8	0-25
7570B:					
Martinsville---------	0-9	6.0-16	---	5.1-7.3	0
	9-12	---	3.1-7.7	5.1-7.3	0
	12-45	8.0-18	---	5.1-7.3	0
	45-57	6.0-15	---	5.1-7.8	0-15
	57-80	3.0-10	---	6.6-8.4	0-25

Table 21.--Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydro-logic group	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind of water table
		Ft						Ft	Ft	
2A:										
Cisne	D	0.0-0.5	Brief	Frequent	---	None	Jan-May	0.0-1.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
3A:										
Hoyleton	C	---	---	None	---	None	Jan-May	1.0-2.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
13A:										
Bluford	C	---	---	None	---	None	Jan-May	0.5-2.0	2.5-4.6	Perched
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
13B:										
Bluford	C	---	---	None	---	None	Jan-May	0.5-2.0	2.5-4.6	Perched
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
48A:										
Ebbert	C/D	0.0-0.5	Brief	Frequent	---	None	Jan-May	0.0-1.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
56B:										
Dana	B	---	---	None	---	None	Jan	>6.0	>6.0	---
		---	---	---	---	---	Feb-Apr	2.0-3.5	3.5-5.5	Perched
		---	---	---	---	---	May-Dec	>6.0	>6.0	---
56B2:										
Dana	B	---	---	None	---	None	Jan	>6.0	>6.0	---
		---	---	---	---	---	Feb-Apr	2.0-3.5	3.3-5.0	Perched
		---	---	---	---	---	May-Dec	>6.0	>6.0	---
132A:										
Starks	B	---	---	None	---	None	Jan-May	1.0-2.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
136A:										
Brooklyn	C/D	0.0-0.5	Brief	Frequent	---	None	Jan-May	0.0-1.0	5.0-6.7	Perched
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
138A:										
Shiloh	C/D	0.0-1.0	Brief	Frequent	---	None	Jan-Jun	0.0-1.0	>6.0	Apparent
		---	---	---	---	---	Jul-Dec	>6.0	>6.0	---
148B:										
Proctor	B	---	---	None	---	None	Jan-Dec	>6.0	>6.0	---
149A:										
Brenton	B	---	---	None	---	None	Jan-May	1.0-2.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
152A:										
Drummer	B/D	0.0-0.5	Brief	Frequent	---	None	Jan-May	0.0-1.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
154A:										
Flanagan	B	---	---	None	---	None	Jan-May	1.0-2.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind of water table
		Ft						Ft	Ft	
206A:										
Thorp	C/D	0.0-0.5	Brief	Frequent	---	None	Jan-May	0.0-1.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
219A:										
Millbrook	B	---	---	None	---	None	Jan-May	1.0-2.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
244A:										
Hartsburg	B/D	0.0-0.5	Brief	Frequent	---	None	Jan-May	0.0-1.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
291B:										
Xenia	B	---	---	None	---	None	Jan-May	1.5-2.5	2.5-5.0	Perched
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
322B:										
Russell	B	---	---	None	---	None	Jan-Dec	>6.0	>6.0	---
322C2:										
Russell	B	---	---	None	---	None	Jan-Dec	>6.0	>6.0	---
330A:										
Peotone	C/D	0.0-1.0	Brief	Frequent	---	None	Jan-Jun	0.0-1.0	>6.0	Apparent
		---	---	---	---	---	Jul-Dec	>6.0	>6.0	---
348B:										
Wingate	B	---	---	None	---	None	Jan	>6.0	>6.0	---
		---	---	---	---	---	Feb-Apr	1.5-3.0	2.4-4.6	Perched
		---	---	---	---	---	May-Dec	>6.0	>6.0	---
353A:										
Toronto	C	---	---	None	---	None	Jan-May	0.5-2.0	3.3-5.0	Perched
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
481A:										
Raub	B	---	---	None	---	None	Jan-May	1.0-2.0	3.3-5.8	Perched
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
496A:										
Fincastle	C	---	---	None	---	None	Jan-May	1.0-2.0	3.3-5.0	Perched
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
533:										
Urban land	D	---	---	None	---	None	Jan-Dec	>6.0	>6.0	---
570B:										
Martinsville	B	---	---	None	---	None	Jan-Dec	>6.0	>6.0	---
570C2:										
Martinsville	B	---	---	None	---	None	Jan-Dec	>6.0	>6.0	---
618C2:										
Senachwine	B	---	---	None	---	None	Jan-Dec	>6.0	>6.0	---
618C3:										
Senachwine	B	---	---	None	---	None	Jan-Dec	>6.0	>6.0	---
618D2:										
Senachwine	B	---	---	None	---	None	Jan-Dec	>6.0	>6.0	---

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind of water table
		Ft						Ft	Ft	
618D3:										
Senachwine------------	B	---	---	None	---	None	Jan-Dec	>6.0	>6.0	---
618F:										
Senachwine------------	B	---	---	None	---	None	Jan-Dec	>6.0	>6.0	---
618G:										
Senachwine------------	B	---	---	None	---	None	Jan-Dec	>6.0	>6.0	---
668B2:										
Somonauk--------------	B	---	---	None	---	None	Jan	>6.0	>6.0	---
		---	---	---	---	---	Feb-Apr	2.0-4.0	>6.0	Apparent
		---	---	---	---	---	May-Dec	>6.0	>6.0	---
722A:										
Drummer---------------	B/D	0.0-0.5	Brief	Frequent	---	None	Jan-May	0.0-1.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
Milford---------------	C/D	0.0-0.5	Brief	Frequent	---	None	Jan-May	0.0-1.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
830:										
Landfill--------------	C	---	---	None	---	None	Jan-Dec	>6.0	>6.0	---
864.										
Pits, quarry										
865.										
Pits, gravel										
871B:										
Lenzburg--------------	C	---	---	None	---	None	Jan-Dec	>6.0	>6.0	---
871D:										
Lenzburg--------------	C	---	---	None	---	None	Jan-Dec	>6.0	>6.0	---
3073A:										
Ross------------------	B	---	---	None	Brief	Frequent	Jan	>6.0	>6.0	---
		---	---	---	---	---	Feb-Apr	4.0-6.0	>6.0	Apparent
		---	---	---	---	---	May-Dec	>6.0	>6.0	---
3107A:										
Sawmill---------------	B/D	0.0-0.5	Brief	Frequent	Brief	Frequent	Jan-May	0.0-1.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
3226A:										
Wirt------------------	B	---	---	None	Brief	Frequent	Jan-Dec	>6.0	>6.0	---
3284A:										
Tice------------------	B	---	---	None	Brief	Frequent	Jan-May	1.0-2.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
3304A:										
Landes----------------	B	---	---	None	Brief	Frequent	Jan-Dec	>6.0	>6.0	---
3424A:										
Shoals----------------	C	---	---	None	Brief	Frequent	Jan-May	0.5-2.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
3450A:										
Brouillett------------	B	---	---	None	Brief	Frequent	Jan-May	1.0-2.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind of water table
		Ft						Ft	Ft	
3451A:										
Lawson----------------	B	---	---	None	Brief	Frequent	Jan-May	1.0-3.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
7132A:										
Starks----------------	B	---	---	None	Brief	Frequent	Jan-May	1.0-2.0	>6.0	Apparent
		---	---	---	---	---	Jun-Dec	>6.0	>6.0	---
7373B:										
Camden----------------	B	---	---	None	Very brief	Rare	Jan	>6.0	>6.0	---
		---	---	---	---	---	Feb-Apr	4.0-6.0	>6.0	Apparent
		---	---	---	---	---	May-Dec	>6.0	>6.0	---
7570B:										
Martinsville----------	B	---	---	---	Very brief	Rare	Jan-Dec	>6.0	>6.0	---

Table 22.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
2A:						
Cisne	Abrupt textural change	16-21	Noncemented	High	High	High
3A:						
Hoyleton	---	---	---	Moderate	High	High
13A:						
Bluford	Fragipan	30-55	Noncemented	High	High	High
13B:						
Bluford	Fragipan	30-55	Noncemented	High	High	High
48A:						
Ebbert	---	---	---	High	High	High
56B:						
Dana	---	---	---	High	High	Moderate
56B2:						
Dana	---	---	---	High	High	Moderate
132A:						
Starks	---	---	---	High	High	High
136A:						
Brooklyn	Dense material	60-100	Noncemented	High	High	High
138A:						
Shiloh	---	---	---	High	High	Low
148B:						
Proctor	---	---	---	High	Moderate	Moderate
149A:						
Brenton	---	---	---	High	High	Moderate
152A:						
Drummer	---	---	---	High	High	Low
154A:						
Flanagan	---	---	---	High	High	Moderate
206A:						
Thorp	---	---	---	High	High	Moderate
219A:						
Millbrook	---	---	---	High	High	Moderate
244A:						
Hartsburg	---	---	---	High	High	Low
291B:						
Xenia	Dense material	40-60	Noncemented	High	High	Moderate
322B:						
Russell	Dense material	40-60	Noncemented	High	Moderate	Moderate

Table 22.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
322C2:						
Russell----------------	Dense material	40-60	Noncemented	High	Moderate	Moderate
330A:						
Peotone----------------	---	---	---	High	High	Low
348B:						
Wingate----------------	---	---	---	High	High	Moderate
353A:						
Toronto----------------	---	---	---	High	High	Moderate
481A:						
Raub-------------------	Dense material	40-70	Noncemented	High	High	Moderate
496A:						
Fincastle--------------	Dense material	40-70	Noncemented	High	High	High
533.						
Urban land						
570B:						
Martinsville-----------	---	---	---	Moderate	Moderate	Moderate
570C2:						
Martinsville-----------	---	---	---	Moderate	Moderate	Moderate
618C2:						
Senachwine-------------	---	---	---	Moderate	Moderate	Moderate
618C3:						
Senachwine-------------	---	---	---	Moderate	Moderate	Moderate
618D2:						
Senachwine-------------	---	---	---	Moderate	Moderate	Moderate
618D3:						
Senachwine-------------	---	---	---	Moderate	Moderate	Moderate
618F:						
Senachwine-------------	---	---	---	Moderate	Moderate	Moderate
618G:						
Senachwine-------------	---	---	---	Moderate	Moderate	Moderate
668B2:						
Somonauk---------------	---	---	---	High	High	Moderate
722A:						
Drummer----------------	---	---	---	High	High	Moderate
Milford----------------	---	---	---	High	High	Low
830.						
Landfill						
864.						
Pits, quarry						
865.						
Pits, gravel						

Table 22.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
871B:						
Lenzburg	---	---	---	Moderate	Low	Low
871D:						
Lenzburg	---	---	---	Moderate	Low	Low
3073A:						
Ross	---	---	---	Moderate	Low	Low
3107A:						
Sawmill	---	---	---	High	High	Low
3226A:						
Wirt	---	---	---	Moderate	High	Moderate
3284A:						
Tice	---	---	---	High	High	Moderate
3304A:						
Landes	---	---	---	Moderate	Low	Moderate
3424A:						
Shoals	---	---	---	High	High	Low
3450A:						
Brouillett	---	---	---	Moderate	High	Low
3451A:						
Lawson	---	---	---	High	High	Low
7132A:						
Starks	---	---	---	High	High	High
7373B:						
Camden	---	---	---	High	Moderate	Moderate
7570B:						
Martinsville	---	---	---	Moderate	Moderate	Moderate

Table 23.--Engineering Index Test Data

(MAX means maximum dry density; OPT, optimum moisture; LL, liquid limit; PI, plasticity index; and NP,

Soil name and location	Parent material	Sample number	Horizon	Depth	Moisture density[1] MAX	Moisture density[1] OPT	Percentage passing sieve[2] No. 4	No. 10	No. 40	No. 200	LL[3]	PI
				In	lb/ft[3]	Pct					Pct	
Landes fine sandy loam, 2,400 feet east and 800 feet north of the southwest corner of sec. 21, T. 12 N., R. 9 E.	Alluvium	81IL029014-1	Ap	0-8	122	11	100	98	95	45	18	4
		81IL029014-4	Bw	18-24	122	11	100	100	100	96	18	NP
		81IL029014-6	C	30-60	117	11	100	100	100	20	18	NP
Lawson silt loam, 180 feet east and 740 feet south of the northwest corner of sec. 1, T. 11 N., R. 9 E.	Alluvium	82IL029019-1	Ap	0-11	107	18	100	99	99	96	36	14
		82IL029019-3	C1	26-41	102	19	100	100	100	97	44	21
Millbrook silt loam, 80 feet south and 1,960 feet east of the northwest corner of sec. 22, T. 11 N., R. 7 E.	Loess over outwash	82IL029041-1	Ap	0-8	108	16	100	99	96	84	26	3
		82IL029041-4	Bt2	20-32	104	19	100	100	97	86	42	21
		82IL029041-7	2C	52-60	120	13	100	100	97	65	22	7

See footnotes at end of table.

Table 23.--Engineering Index Test Data--Continued

Soil name and location	Parent material	Sample number	Horizon	Depth	Moisture density[1] MAX	Moisture density[1] OPT	Percentage passing sieve[2] No. 4	No. 10	No. 40	No. 200	LL[3]	PI
				In	lb/ft^3	Pct					Pct	
Senachwine loam, 400 feet west and 2,400 feet north of the southeast corner of sec. 14, T. 11 N., R. 9 E.	Till	82IL029040-1	Ap	0-3	105	16	95	93	83	45	36	9
		82IL029040-4	Bt2	20-25	112	17	98	98	92	70	35	19
		82IL029040-7	C	43-47	123	12	97	93	83	60	26	11
Starks silt loam, 600 feet east and 1,300 feet north of the southwest corner of sec. 17, T. 11 N., R. 7 E.	Loess over outwash	82IL029022-1	Ap	0-8	114	13	99	97	90	71	25	5
		82IL029022-5	Bt3	26-36	99	22	99	98	93	83	46	26
		82IL029022-7	2C	44-60	119	13	96	93	83	49	27	14
Tice silty clay loam, 880 feet west and 400 feet north of the southeast corner of sec. 11, T. 11 N., R. 7 E.	Alluvium	82IL029025-1	Ap	0-7	102	20	100	100	99	95	44	20
		82IL029025-4	Bw2	20-31	105	20	100	100	99	92	44	24

See footnotes at end of table.

Table 23.--Engineering Index Test Data--Continued

Soil name and location	Parent material	Sample number	Horizon	Depth	Moisture density[1]		Percentage passing sieve[2]				LL[3]	PI
					MAX	OPT	No. 4	No. 10	No. 40	No. 200		
				In	lb/ft^3	Pct					Pct	
Wirt silt loam, 390 feet west and 540 feet south of the northeast corner of sec. 14, T. 11 N., R. 9 E.	Alluvium	82IL029026-1	Ap	0-9	114	14	100	100	99	70	26	7
		82IL029026-3	Bw2	23-32	123	11	93	91	87	54	23	8

1 Based on AASHTO designation T99, method A.

2 Analysis according to AASHTO designation T88. Results by this procedure frequently differ somewhat from resu
soil survey procedure of the Natural Resources Conservation Service (NRCS).

3 Based on AASHTO designation T89.

4 Based on AASHTO designations T90-56 and T91-54.

5 Based on AASHTO designation M145-49.

6 Based on the Unified Soil Classification System.

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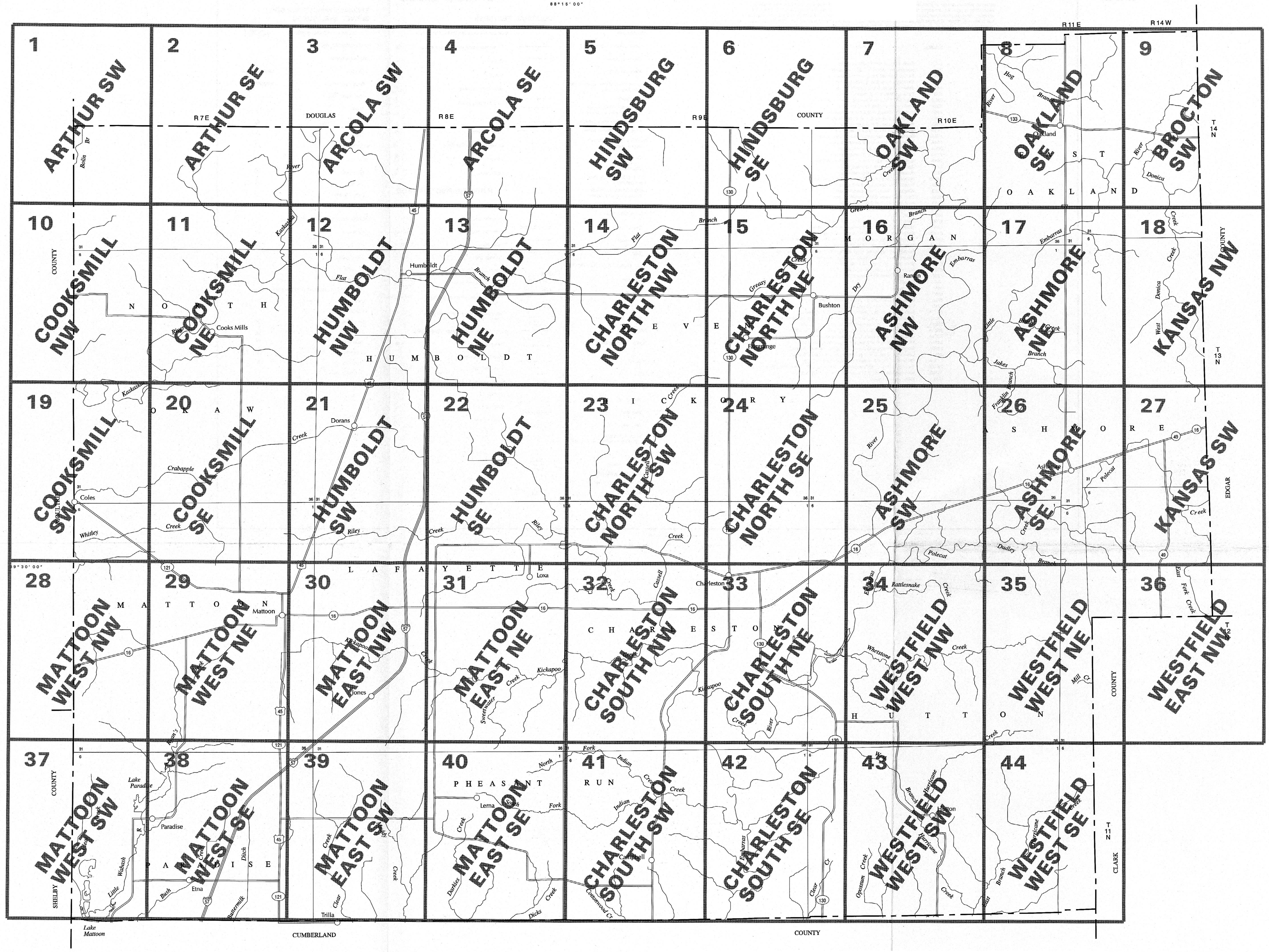

INDEX TO MAP SHEETS
COLES COUNTY, ILLINOIS

MILES 1 0 1 2 3

KILOMETERS 1 0 1 2 3 4 5 6

SCALE = 1:85000

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COLES COUNTY, ILLINOIS

ILLINOIS AGRICULTURAL EXPERIMENT STATION

SOIL LEGEND

Map unit symbols consist of a combination of numbers and letters. The initial numbers represent the kind of soil or miscellaneous area. An uppercase letter following these numbers indicates the class of slope. A final number of 2 following the slope class letter indicates that the soil is moderately eroded, and a final number of 3 indicates that the soil is severely eroded. Symbols that do not have a final number of 2 or 3 following a slope class letter indicate map units that are not eroded or are only slightly eroded. Symbols for miscellaneous areas do not have a slope class letter.

SYMBOL	NAME
2A	Cisne silt loam, 0 to 2 percent slopes
3A	Hoyleton silt loam, 0 to 2 percent slopes
13A	Bluford silt loam, 0 to 2 percent slopes
13B	Bluford silt loam, 2 to 5 percent slopes
48A	Ebbert silt loam, 0 to 2 percent slopes
56B	Dana silt loam, 2 to 5 percent slopes
56B2	Dana silt loam, 2 to 5 percent slopes, eroded
132A	Starks silt loam, 0 to 2 percent slopes
136A	Brooklyn silt loam, 0 to 2 percent slopes
138A	Shiloh silty clay loam, 0 to 2 percent slopes
148B	Proctor silt loam, 2 to 5 percent slopes
149A	Brenton silt loam, 0 to 2 percent slopes
152A	Drummer silty clay loam, 0 to 2 percent slopes
154A	Flanagan silt loam, 0 to 2 percent slopes
206A	Thorp silt loam, 0 to 2 percent slopes
219A	Millbrook silt loam, 0 to 2 percent slopes
244A	Hartsburg silty clay loam, 0 to 2 percent slopes
291B	Xenia silt loam, 2 to 5 percent slopes
322B	Russell silt loam, 2 to 5 percent slopes
322C2	Russell silt loam, 5 to 10 percent slopes, eroded
330A	Peotone silty clay loam, 0 to 2 percent slopes
348B	Wingate silt loam, 2 to 5 percent slopes
353A	Toronto silt loam, 0 to 2 percent slopes
481A	Raub silt loam, 0 to 2 percent slopes
496A	Fincastle silt loam, 0 to 2 percent slopes
533	Urban land
570B	Martinsville silt loam, 2 to 5 percent slopes
570C2	Martinsville loam, 5 to 12 percent slopes, eroded
618C2	Senachwine silt loam, 5 to 10 percent slopes, eroded
618C3	Senachwine clay loam, 5 to 10 percent slopes, severely eroded
618D2	Senachwine silt loam, 10 to 18 percent slopes, eroded
618D3	Senachwine clay loam, 10 to 18 percent slopes, severely eroded
618F	Senachwine silt loam, 18 to 35 percent slopes
618G	Senachwine silt loam, 35 to 60 percent slopes
668B2	Somonauk silt loam, 2 to 5 percent slopes, eroded
722A	Drummer-Milford silty clay loams, 0 to 2 percent slopes
830	Landfill
864	Pits, quarry
865	Pits, gravel
871B	Lenzburg gravelly loam, 1 to 5 percent slopes
871D	Lenzburg loam, 7 to 20 percent slopes
3073A	Ross silt loam, 0 to 2 percent slopes, frequently flooded
3107A	Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded
3226A	Wirt silt loam, 0 to 2 percent slopes, frequently flooded
3284A	Tice silty clay loam, 0 to 2 percent slopes, frequently flooded
3304A	Landes fine sandy loam, 0 to 2 percent slopes, frequently flooded
3424A	Shoals silt loam, 0 to 2 percent slopes, frequently flooded
3450A	Brouillett silt loam, 0 to 2 percent slopes, frequently flooded
3451A	Lawson silt loam, 0 to 2 percent slopes, frequently flooded
7132A	Starks silt loam, 0 to 2 percent slopes, rarely flooded
7373B	Camden silt loam, sandy substratum, 2 to 5 percent slopes, rarely flooded
7570B	Martinsville silt loam, 2 to 5 percent slopes, rarely flooded
M-W	Miscellaneous water
W	Water

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES
- National, state, or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park)
- Land grant
- Limit of soil survey (label) and/or denied access area
- Field sheet matchline & neatline
- Previously Published Survey

OTHER BOUNDARY (label)
- Airport, airfield
- Cemetery
- City/county park

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNER
(section and land grants)

GEOGRAPHIC COORDINATE TICK

TRANSPORTATION
- Divided roads
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS
- Interstate — 173, 79 345
- Federal — 287, 410 224
- State — 52, 52 347
- County, farm or ranch — 1283

RAILROAD

POWER TRANSMISSION LINE

PIPELINE

FENCE

LEVEES
- Without road
- With road
- With railroad
- Single side slope (showing actual feature location)

DAMS
- Medium or Small

LANDFORM FEATURES
- Prominent hill or peak
- Soil Sample Site

MISCELLANEOUS CULTURAL FEATURES
- Farmstead, house (omit in urban areas)
- Church
- School
- Other Religion (label) — Mt Carmel
- Located object (label) — Ranger Station
- Tank (label) — Petroleum
- Lookout Tower
- Oil and/or Natural Gas Wells
- Windmill
- Lighthouse

HYDROGRAPHIC FEATURES

STREAMS
- Perennial, double line
- Perennial, single line — Label only
- Intermittent — Label only
- Drainage end — Label only

DRAINAGE AND IRRIGATION
- Double-line canal (label) — CANAL
- Perennial drainage and/or irrigation ditch — Label only
- Intermittent drainage and/ or irrigation ditch — Label only

SMALL LAKES, PONDS AND RESERVOIRS
- Perennial water
- Miscellaneous water
- Flood pool line — FLOOD POOL LINE

MISCELLANEOUS WATER FEATURES
- Spring
- Well, artesian
- Well, irrigation

SPECIAL SYMBOLS FOR SOIL SURVEY AND SSURGO

SOIL DELINEATIONS AND SYMBOLS — 2A 330A

LANDFORM FEATURES

ESCARPMENTS
- Bedrock
- Other than bedrock
- Short steep slope
- Gully
- Depression, closed
- Sinkhole

EXCAVATIONS

PITS
- Borrow pits
- Gravel pit
- Mine or quarry
- Landfill

MISCELLANEOUS SURFACE FEATURES
- Blowout
- Clay spot
- Gravelly spot
- Lava flow
- Marsh or swamp
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip
- Sodic spot
- Spoil area
- Stony spot
- Very stony spot
- Wet spot

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COLES COUNTY, ILLINOIS
ARTHUR SW QUADRANGLE
SHEET NUMBER 1 OF 44

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

2 ARTHUR SE
10 COOKS MILLS NW
11 COOKS MILLS NE
INDEX TO ADJOINING 3.75 MAPS

ARTHUR SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 1 OF 44

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1 ARTHUR SW
3 ARCOLA SW
10 COOKS MILLS NW
11 COOKS MILLS NE
12 HUMBOLDT NW

INDEX TO ADJOINING 3.75 MAPS

ARTHUR SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 2 OF 44

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COLES COUNTY, ILLINOIS
ARCOLA SW QUADRANGLE
SHEET NUMBER 3 OF 44

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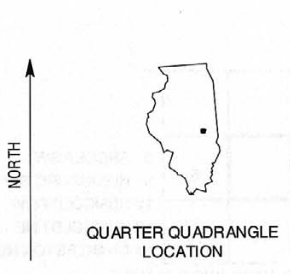
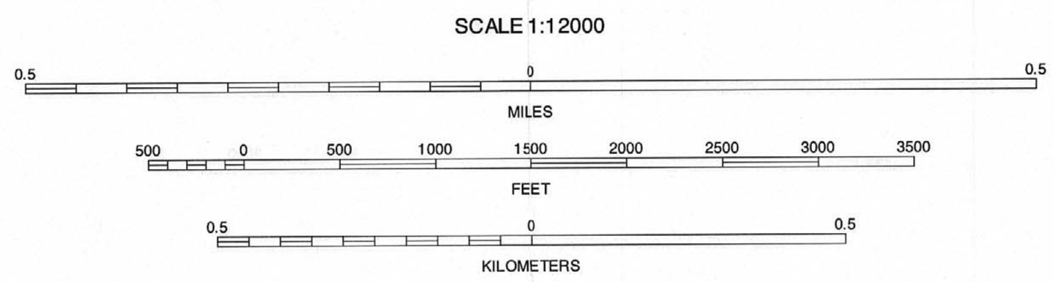


QUARTER QUADRANGLE LOCATION

SCALE 1:12000



2	[current sheet]	4
11	12	13

2 ARTHUR SE
4 ARCOLA SE
11 COOKS MILLS NE
12 HUMBOLDT NW
13 HUMBOLDT NE

INDEX TO ADJOINING 3.75 MAPS

ARCOLA SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 3 OF 44

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COLES COUNTY, ILLINOIS
ARCOLA SE QUADRANGLE
SHEET NUMBER 4 OF 44

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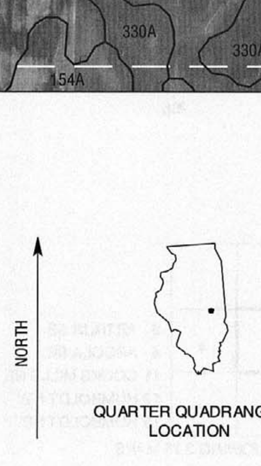

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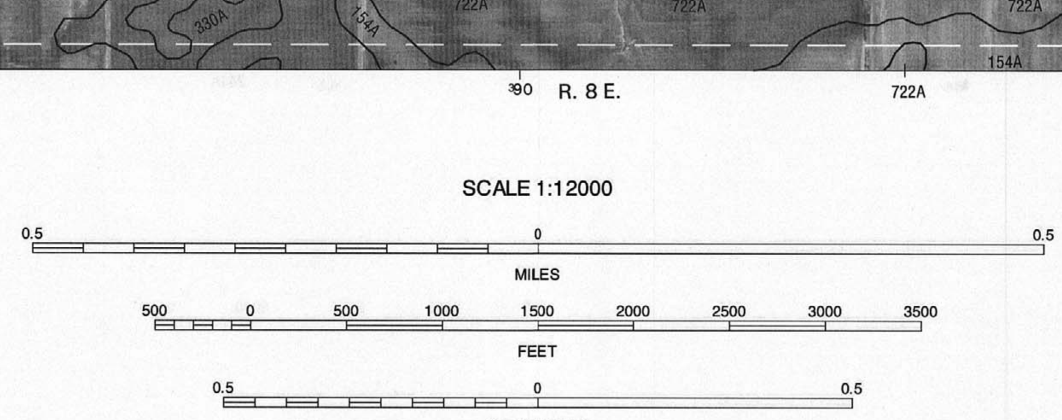

3		5
12	13	14

3 ARCOLA SW
5 HINDSBORO SW
12 HUMBOLDT NW
13 HUMBOLDT NE
14 CHARLESTON NORTH NW

INDEX TO ADJOINING 3.75 MAPS

ARCOLA SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 4 OF 44

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UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

COLES COUNTY, ILLINOIS
HINDSBORO SW QUADRANGLE
SHEET NUMBER 5 OF 44

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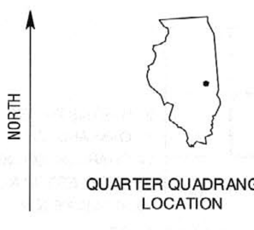
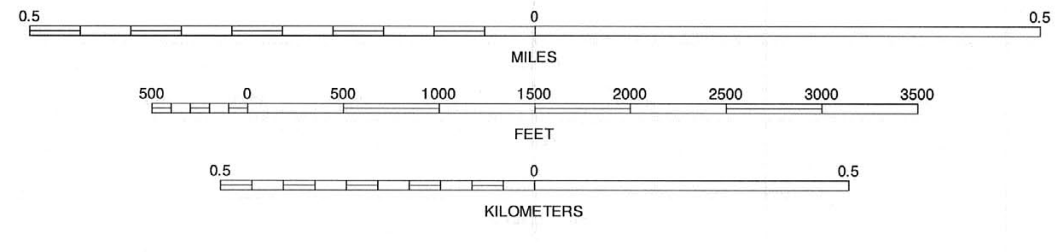
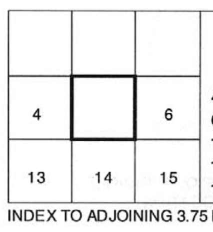


QUARTER QUADRANGLE LOCATION

SCALE 1:12000





4 ARCOLA SE
6 HINDSBORO SE
13 HUMBOLDT NE
14 CHARLESTON NORTH NW
15 CHARLESTON NORTH NE

INDEX TO ADJOINING 3.75 MAPS

HINDSBORO SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 5 OF 44

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

5		7
14	15	16

5 HINDSBORO SW
7 OAKLAND SW
14 CHARLESTON NORTH NW
15 CHARLESTON NORTH NE
16 ASHMORE NW

INDEX TO ADJOINING 3.75 MAPS

HINDSBORO SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 6 OF 44

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COLES COUNTY, ILLINOIS
OAKLAND SW QUADRANGLE
SHEET NUMBER 7 OF 44

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

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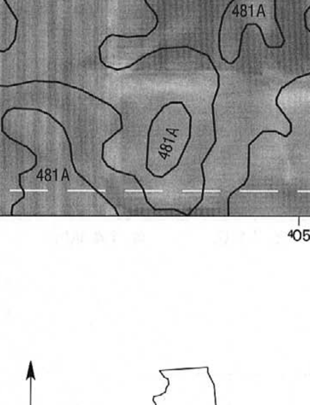

QUARTER QUADRANGLE LOCATION

6		8
15	16	17

6 HINDSBORO SE
8 OAKLAND SE
15 CHARLESTON NORTH NE
16 ASHMORE NW
17 ASHMORE NE

INDEX TO ADJOINING 3.75 MAPS

OAKLAND SW, ILLINOIS

3.75 MINUTE SERIES
SHEET NUMBER 7 OF 44

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COLES COUNTY, ILLINOIS
OAKLAND SE QUADRANGLE
SHEET NUMBER 8 OF 44

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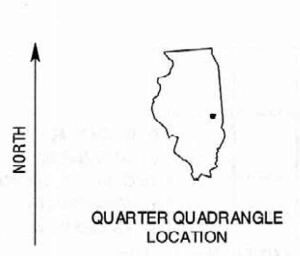
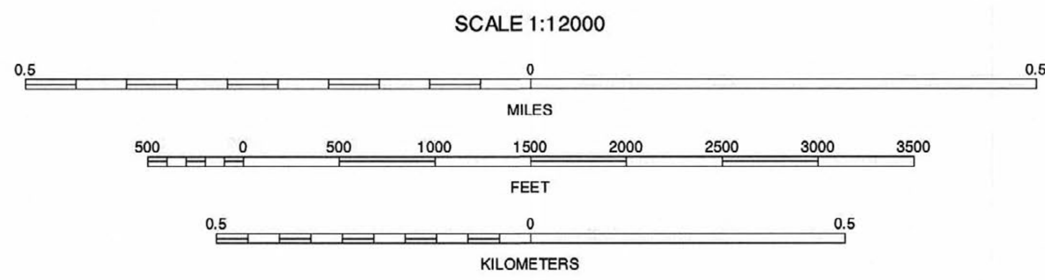


QUARTER QUADRANGLE LOCATION

SCALE 1:12000



7		9
16	17	18

7 OAKLAND SW
9 BROCTON SW
16 ASHMORE NW
17 ASHMORE NE
18 KANSAS NW

INDEX TO ADJOINING 3.75 MAPS

OAKLAND SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 8 OF 44

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COLES COUNTY, ILLINOIS
BROCTON SW QUADRANGLE
SHEET NUMBER 9 OF 44

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

8 OAKLAND SE
17 ASHMORE NE
18 KANSAS NW

INDEX TO ADJOINING 3.75 MAPS

BROCTON SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 9 OF 44

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

88° 30′00″ 88° 26′15″

39° 37′30″ 39° 37′30″

39° 33′45″ 39° 33′45″

88° 30′00″ 88° 26′15″

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 0 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 0 0.5

	1	2
	■	11
	19	20

1 ARTHUR SW
2 ARTHUR SE
11 COOKS MILLS NE
19 COOKS MILLS SW
20 COOKS MILLS SE

INDEX TO ADJOINING 3.75 MAPS

COOKS MILLS NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 10 OF 44

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COLES COUNTY, ILLINOIS
COOKS MILLS NE QUADRANGLE
SHEET NUMBER 11 OF 44

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1	2	3
10		12
19	20	21

1 ARTHUR SW
2 ARTHUR SE
3 ARCOLA SW
10 COOKS MILLS NW
12 HUMBOLDT NW
19 COOKS MILLS SW
20 COOKS MILLS SE
21 HUMBOLDT SW

INDEX TO ADJOINING 3.75 MAPS

COOKS MILLS NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 11 OF 44

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 0 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 0 0.5

2	3	4
11		13
20	21	22

2 ARTHUR SE
3 ARCOLA SW
4 ARCOLA SE
11 COOKS MILLS NE
13 HUMBOLDT NE
20 COOKS MILLS SE
21 HUMBOLDT SW
22 HUMBOLDT SE

INDEX TO ADJOINING 3.75 MAPS

HUMBOLDT NW, ILLINOIS

3.75 MINUTE SERIES
SHEET NUMBER 12 OF 44

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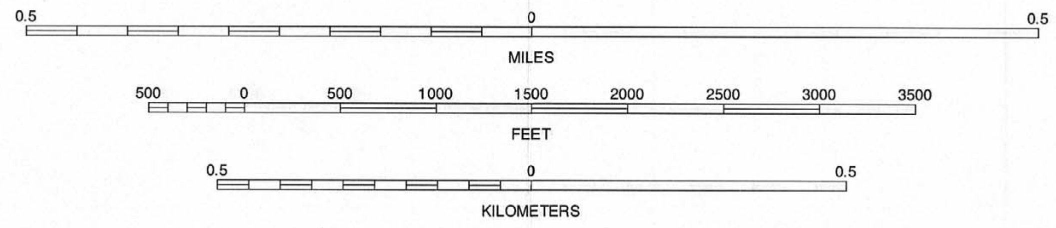
SCALE 1:12000



3	4	5
12		14
21	22	23

3 ARCOLA SW
4 ARCOLA SE
5 HINDSBORO SW
12 HUMBOLDT NW
14 CHARLESTON NORTH NW
21 HUMBOLDT SW
22 HUMBOLDT SE
23 CHARLESTON NORTH SW

INDEX TO ADJOINING 3.75 MAPS

HUMBOLDT NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 13 OF 44

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COLES COUNTY, ILLINOIS
CHARLESTON NORTH NW QUADRANGLE
SHEET NUMBER 14 OF 44

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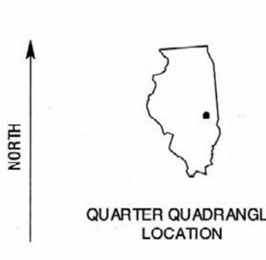

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

4	5	6
13		15
22	23	24

4 ARCOLA SE
5 HINDSBORO SW
6 HINDSBORO SE
13 HUMBOLDT NE
15 CHARLESTON NORTH NE
22 HUMBOLDT SE
23 CHARLESTON NORTH SW
24 CHARLESTON NORTH SE

INDEX TO ADJOINING 3.75 MAPS

CHARLESTON NORTH NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 14 OF 44

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COLES COUNTY, ILLINOIS
CHARLESTON NORTH NE QUADRANGLE
SHEET NUMBER 15 OF 44

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

5	6	7
14		16
23	24	25

5 HINDSBORO SW
6 HINDSBORO SE
7 OAKLAND SW
14 CHARLESTON NORTH NW
16 ASHMORE NW
23 CHARLESTON NORTH SW
24 CHARLESTON NORTH SE
25 ASHMORE SW

INDEX TO ADJOINING 3.75 MAPS

CHARLESTON NORTH NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 15 OF 44

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COLES COUNTY, ILLINOIS
ASHMORE NW QUADRANGLE
SHEET NUMBER 16 OF 44

SCALE 1:12000

MILES

FEET

KILOMETERS

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

6	7	8
15		17
24	25	26

6 HINDSBORO SE
7 OAKLAND SW
8 OAKLAND SE
15 CHARLESTON NORTH NE
17 ASHMORE NE
24 CHARLESTON NORTH SE
25 ASHMORE SW
26 ASHMORE SE

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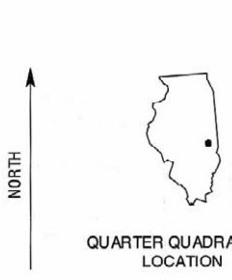
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COLES COUNTY, ILLINOIS
ASHMORE NE QUADRANGLE
SHEET NUMBER 17 OF 44

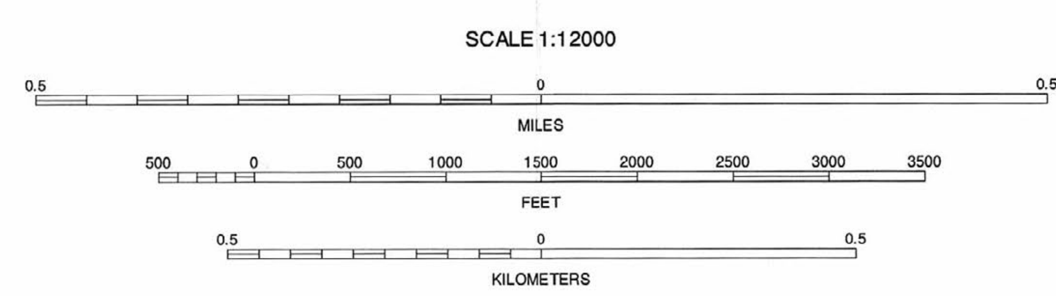
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000



7	8	9
16		18
25	26	27

7 OAKLAND SW
8 OAKLAND SE
9 BROCTON SW
16 ASHMORE NW
18 KANSAS NW
25 ASHMORE SW
26 ASHMORE SE
27 KANSAS SW

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UNITED STATES
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COLES COUNTY, ILLINOIS
KANSAS NW QUADRANGLE
SHEET NUMBER 18 OF 44

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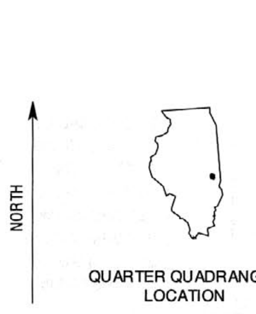
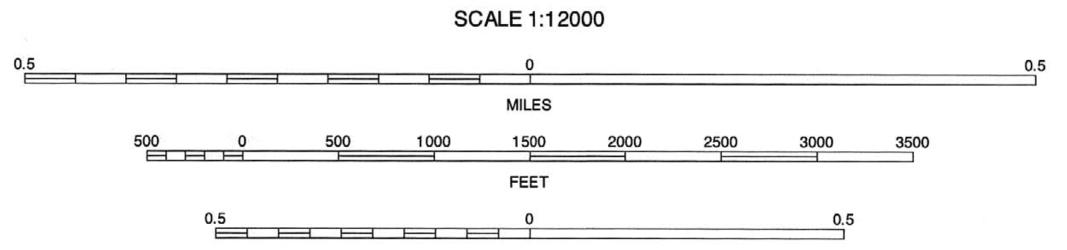
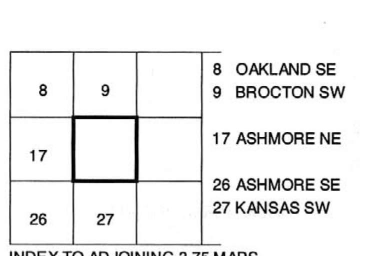


QUARTER QUADRANGLE LOCATION

SCALE 1:12000





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COLES COUNTY, ILLINOIS
COOKS MILLS SW QUADRANGLE
SHEET NUMBER 19 OF 44

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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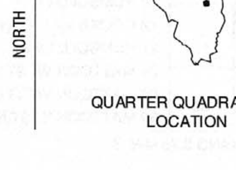
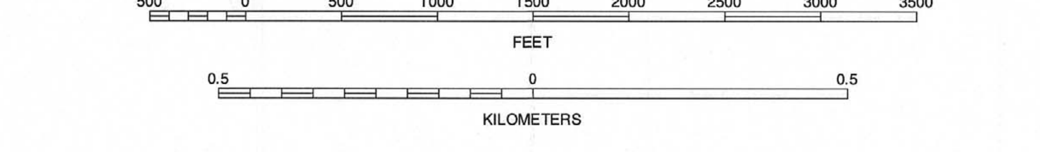
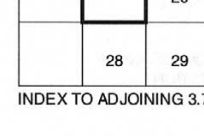
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000





10 COOKS MILLS NW
11 COOKS MILLS NE
20 COOKS MILLS SE
28 MATTOON WEST NW
29 MATTOON WEST NE

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COLES COUNTY, ILLINOIS
COOKS MILLS SE QUADRANGLE
SHEET NUMBER 20 OF 44

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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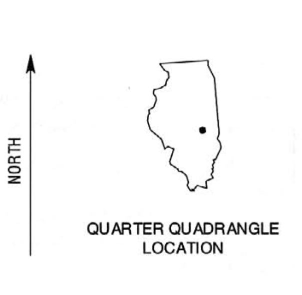
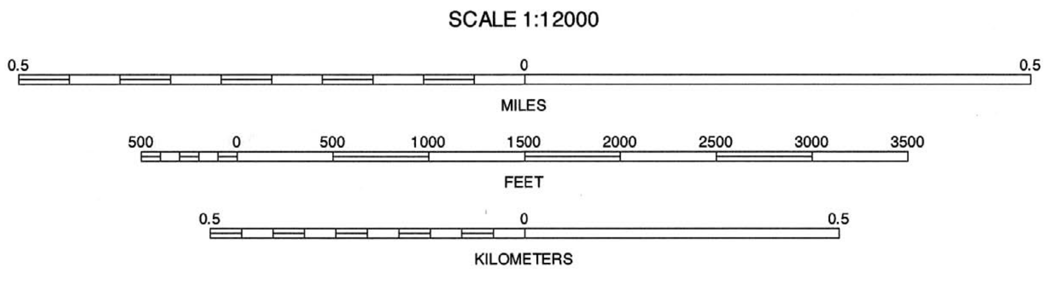


QUARTER QUADRANGLE LOCATION

SCALE 1:12000



10	11	12
19		21
28	29	30

10 COOKS MILLS NW
11 COOKS MILLS NE
12 HUMBOLDT NW
19 COOKS MILLS SW
21 HUMBOLDT SW
28 MATTOON WEST NW
29 MATTOON WEST NE
30 MATTOON EAST NW

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COLES COUNTY, ILLINOIS
HUMBOLDT SW QUADRANGLE
SHEET NUMBER 21 OF 44

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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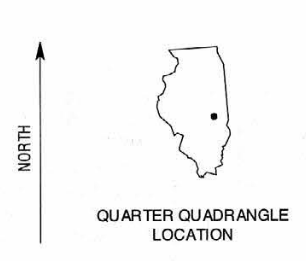

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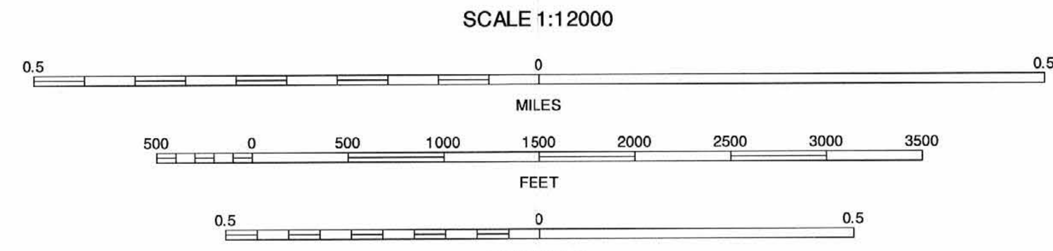

11	12	13
20		22
29	30	31

11 COOKS MILLS NE
12 HUMBOLDT NW
13 HUMBOLDT NE
20 COOKS MILLS SE
22 HUMBOLDT SE
29 MATTOON WEST NE
30 MATTOON EAST NW
31 MATTOON EAST NE

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COLES COUNTY, ILLINOIS
HUMBOLDT SE QUADRANGLE
SHEET NUMBER 22 OF 44

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE
LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

12	13	14
21		23
30	31	32

12 HUMBOLDT NW
13 HUMBOLDT NE
14 CHARLESTON NORTH NW
21 HUMBOLDT SW
23 CHARLESTON NORTH SW
30 MATTOON EAST NW
31 MATTOON EAST NE
32 CHARLESTON SOUTH NW

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COLES COUNTY, ILLINOIS
CHARLESTON NORTH SW QUADRANGLE
SHEET NUMBER 23 OF 44

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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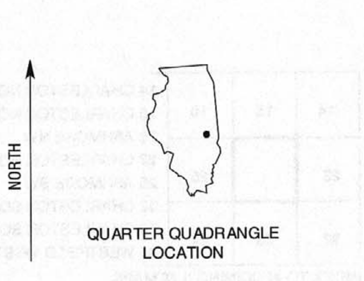

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

13	14	15
22		24
31	32	33

13 HUMBOLDT NE
14 CHARLESTON NORTH NW
15 CHARLESTON NORTH NE
22 HUMBOLDT SE
24 CHARLESTON NORTH SE
31 MATTOON EAST NE
32 CHARLESTON SOUTH NW
33 CHARLESTON SOUTH NE

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COLES COUNTY, ILLINOIS
CHARLESTON NORTH SE QUADRANGLE
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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

14	15	16
23		25
32	33	34

14 CHARLESTON NORTH NW
15 CHARLESTON NORTH NE
16 ASHMORE NW
23 CHARLESTON NORTH SW
25 ASHMORE SW
32 CHARLESTON SOUTH NW
33 CHARLESTON SOUTH NE
34 WESTFIELD WEST NW

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COLES COUNTY, ILLINOIS
ASHMORE SW QUADRANGLE
SHEET NUMBER 25 OF 44

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

15	16	17
24		26
33	34	35

15 CHARLESTON NORTH NE
16 ASHMORE NW
17 ASHMORE NE
24 CHARLESTON NORTH SE
26 ASHMORE SE
33 CHARLESTON SOUTH NE
34 WESTFIELD WEST NW
35 WESTFIELD WEST NE

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COLES COUNTY, ILLINOIS
ASHMORE SE QUADRANGLE
SHEET NUMBER 26 OF 44

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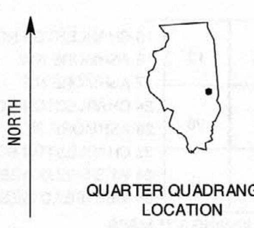

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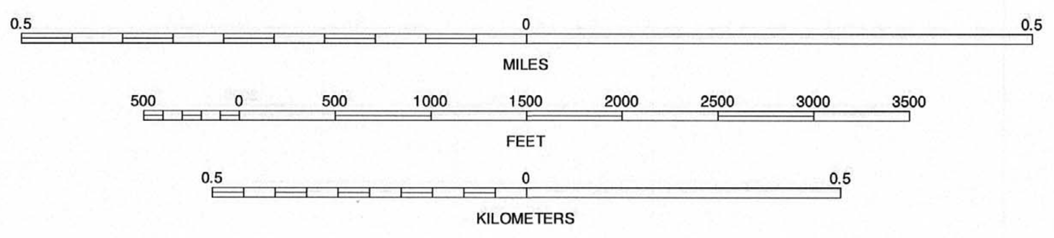

16	17	18
25		27
34	35	36

16 ASHMORE NW
17 ASHMORE NE
18 KANSAS NW
25 ASHMORE SW
27 KANSAS SW
34 WESTFIELD WEST NW
35 WESTFIELD WEST NE
36 WESTFIELD EAST NW

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COLES COUNTY, ILLINOIS
KANSAS SW QUADRANGLE
SHEET NUMBER 27 OF 44

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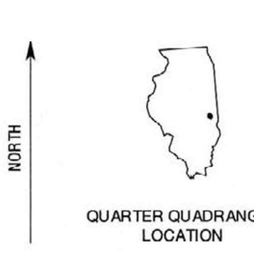

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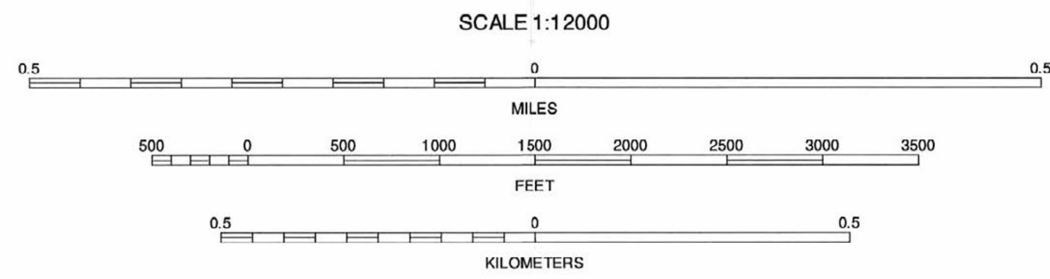

17	18		17 ASHMORE NE 18 KANSAS NW
26	■		26 ASHMORE SE
35	36		35 WESTFIELD WEST NE 36 WESTFIELD EAST NW

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KANSAS SW, ILLINOIS
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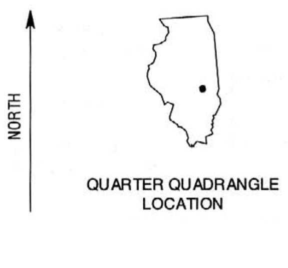

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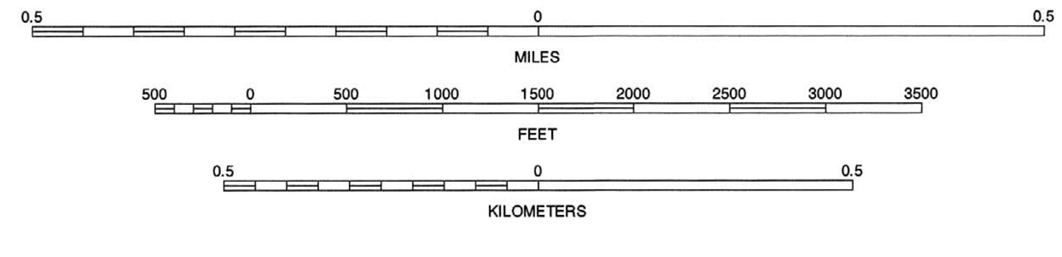

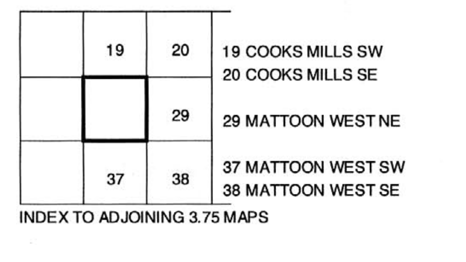

MATTOON WEST NW, ILLINOIS
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UNITED STATES
DEPARTMENT OF AGRICULTURE
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COLES COUNTY, ILLINOIS
MATTOON WEST NE QUADRANGLE
SHEET NUMBER 29 OF 44

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North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

19	20	21
28		30
37	38	39

19 COOKS MILLS SW
20 COOKS MILLS SE
21 HUMBOLDT SW
28 MATTOON WEST NW
30 MATTOON EAST NW
37 MATTOON WEST SW
38 MATTOON WEST SE
39 MATTOON EAST SW

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UNITED STATES
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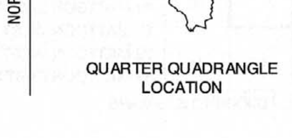

SCALE 1:12000

MILES: 0.5 — 0 — 0.5

FEET: 500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500

KILOMETERS: 0.5 — 0 — 0.5

20	21	22
29		31
38	39	40

20 COOKSMILL SE
21 HUMBOLDT SW
22 HUMBOLDT SE
29 MATTOON WEST NE
31 MATTOON EAST NE
38 MATTOON WEST SE
39 MATTOON EAST SW
40 MATTOON EAST SE

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MATTOON EAST NW, ILLINOIS

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UNITED STATES
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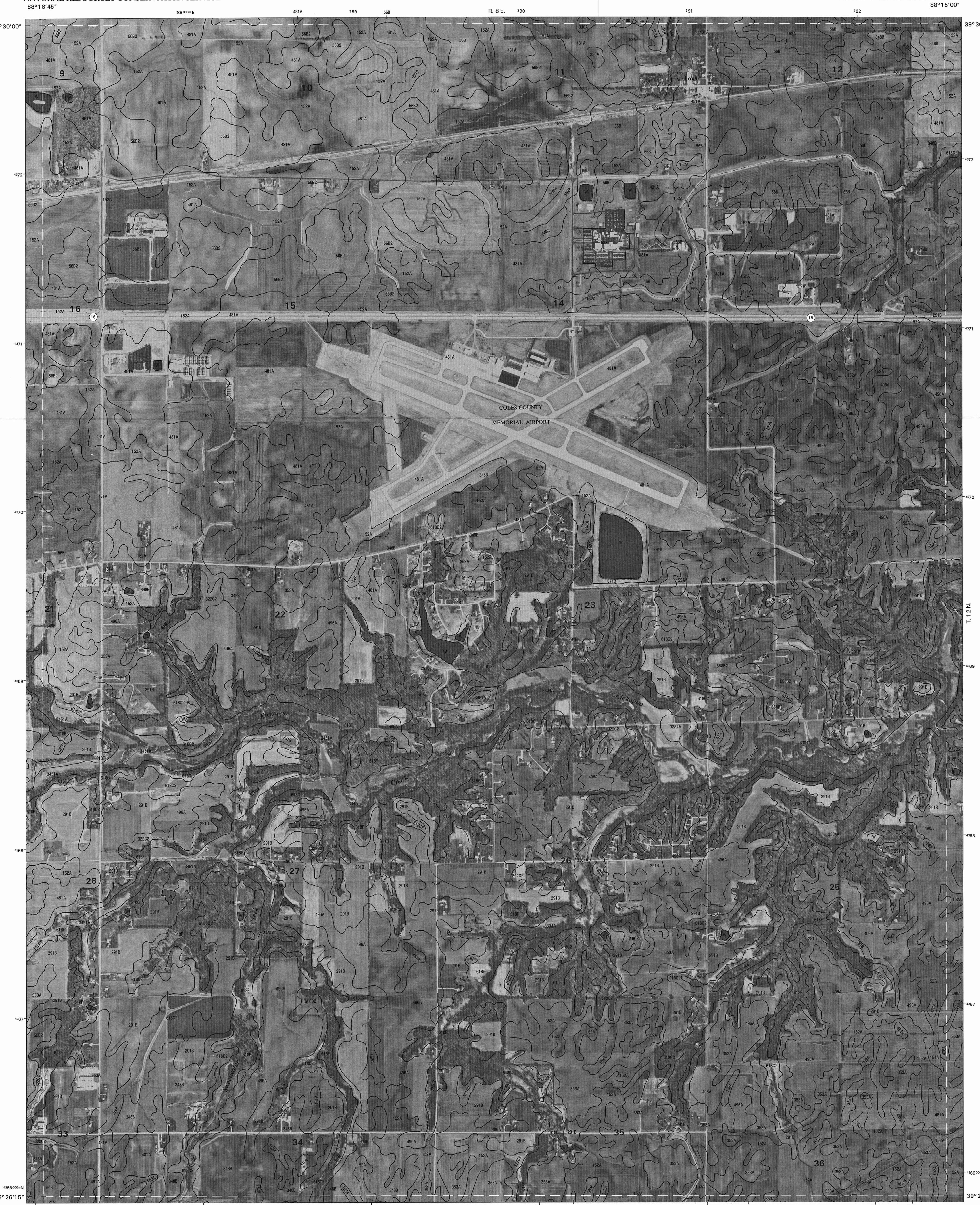

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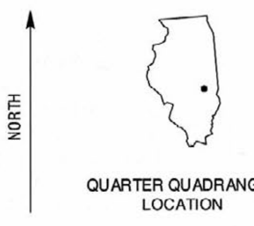
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



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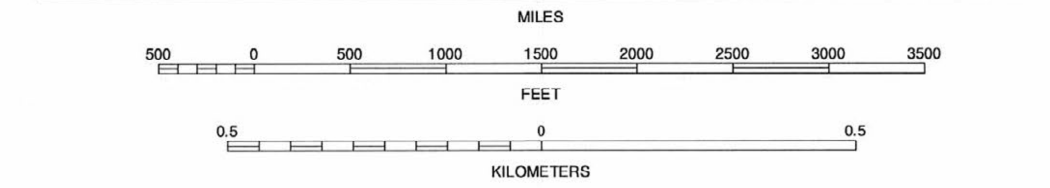

21	22	23
30		32
39	40	41

21 HUMBOLDT SW
22 HUMBOLDT SE
23 CHARLESTON NORTH SW
30 MATTOON EAST NW
32 CHARLESTON SOUTH NW
39 MATTOON EAST SW
40 MATTOON EAST SE
41 CHARLESTON SOUTH SW

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MATTOON EAST NE, ILLINOIS
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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COLES COUNTY, ILLINOIS
CHARLESTON SOUTH NW QUADRANGLE
SHEET NUMBER 32 OF 44

SCALE 1:12000

MILES

FEET

KILOMETERS

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North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

22	23	24
31		33
40	41	42

22 HUMBOLDT SE
23 CHARLESTON NORTH SW
24 CHARLESTON NORTH SE
31 MATTOON EAST NE
33 CHARLESTON SOUTH NE
40 MATTOON EAST SE
41 CHARLESTON SOUTH SW
42 CHARLESTON SOUTH SE

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CHARLESTON SOUTH NW, ILLINOIS
3.75 MINUTE SERIES
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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES 0.5 0 0.5

FEET 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS 0.5 0 0.5

23	24	25
32		34
41	42	43

23 CHARLESTON NORTH SW
24 CHARLESTON NORTH SE
25 ASHMORE SW
32 CHARLESTON SOUTH NW
34 WESTFIELD WEST NW
41 CHARLESTON SOUTH SW
42 CHARLESTON SOUTH SE
43 WESTFIELD WEST SW

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CHARLESTON SOUTH NE, ILLINOIS
3.75 MINUTE SERIES
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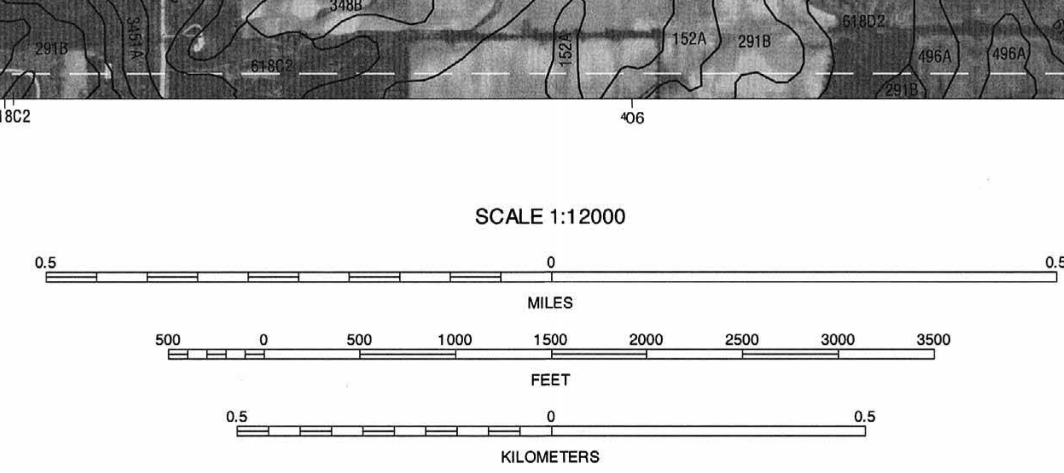
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COLES COUNTY, ILLINOIS
WESTFIELD WEST NW QUADRANGLE
SHEET NUMBER 34 OF 44

SCALE 1:12000



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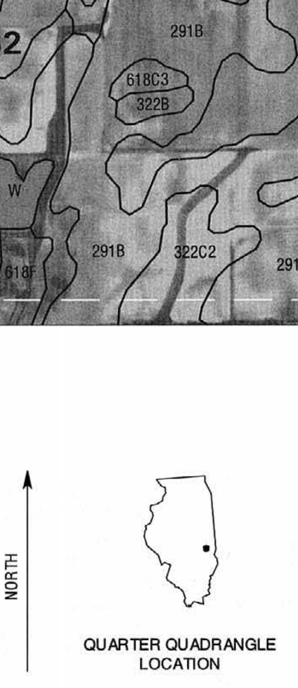

QUARTER QUADRANGLE LOCATION

24	25	26
33		35
42	43	44

24 CHARLESTON NORTH SE
25 ASHMORE SW
26 ASHMORE SE
33 CHARLESTON SOUTH NE
35 WESTFIELD WEST NE
42 CHARLESTON SOUTH SE
43 WESTFIELD WEST SW
44 WESTFIELD WEST SE

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WESTFIELD WEST NW, ILLINOIS

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

SCALE 1:12000

MILES

FEET

KILOMETERS

NORTH

QUARTER QUADRANGLE LOCATION

25	26	27
34		36
43	44	

25 ASHMORE SW
26 ASHMORE SE
27 KANSAS SW
34 WESTFIELD WEST NW
36 WESTFIELD EAST NW
43 WESTFIELD WEST SW
44 WESTFIELD WEST SE

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WESTFIELD WEST NE, ILLINOIS
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UNITED STATES
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COLES COUNTY, ILLINOIS
WESTFIELD EAST NW QUADRANGLE
SHEET NUMBER 36 OF 44

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

26	27	
35	■	
44		

26 ASHMORE SE
27 KANSAS SW
35 WESTFIELD WEST NE
44 WESTFIELD WEST SE

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WESTFIELD EAST NW, ILLINOIS
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COLES COUNTY, ILLINOIS
MATTOON WEST SW QUADRANGLE (OVERSIZED)
SHEET NUMBER 37 OF 44

SCALE 1:12000

MILES

FEET

KILOMETERS

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

28 MATTOON WEST NW
29 MATTOON WEST NE
38 MATTOON WEST SE

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MATTOON WEST SW, (OVERSIZED) ILLINOIS
3.75 MINUTE SERIES
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UNITED STATES
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COLES COUNTY, ILLINOIS
MATTOON WEST SE QUADRANGLE (OVERSIZED)
SHEET NUMBER 38 OF 44

88° 26′15″ 88° 22′30″

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

28	29	30
37		39

28 MATTOON WEST NW
29 MATTOON WEST NE
30 MATTOON EAST NW
37 MATTOON WEST SW
39 MATTOON EAST SW

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MATTOON WEST SE, (OVERSIZED) ILLINOIS
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

29	30	31
38		40

29 MATTOON WEST NE
30 MATTOON EAST NW
31 MATTOON EAST NE
38 MATTOON WEST SE
40 MATTOON EAST SE

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MATTOON EAST SW, (OVERSIZED) ILLINOIS
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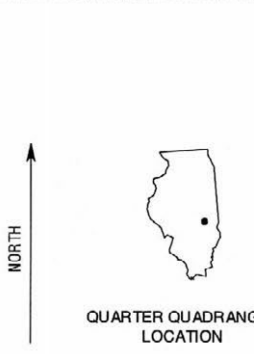
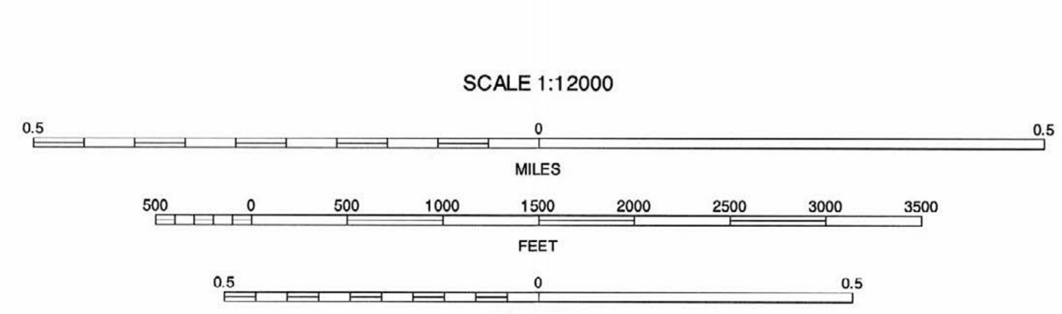
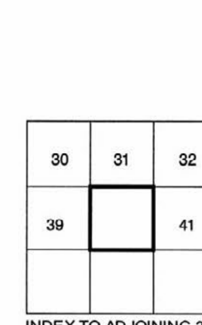


QUARTER QUADRANGLE LOCATION

SCALE 1:12000





30 MATTOON EAST NW
31 MATTOON EAST NE
32 CHARLESTON SOUTH NW
39 MATTOON EAST SW
41 CHARLESTON SOUTH SW

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MATTOON EAST SE, (OVERSIZED) ILLINOIS

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COLES COUNTY, ILLINOIS
CHARLESTON SOUTH SW QUADRANGLE (OVERSIZED)
SHEET NUMBER 41 OF 44

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
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North American Datum of 1983 (NAD83). GRS-80 Spheroid
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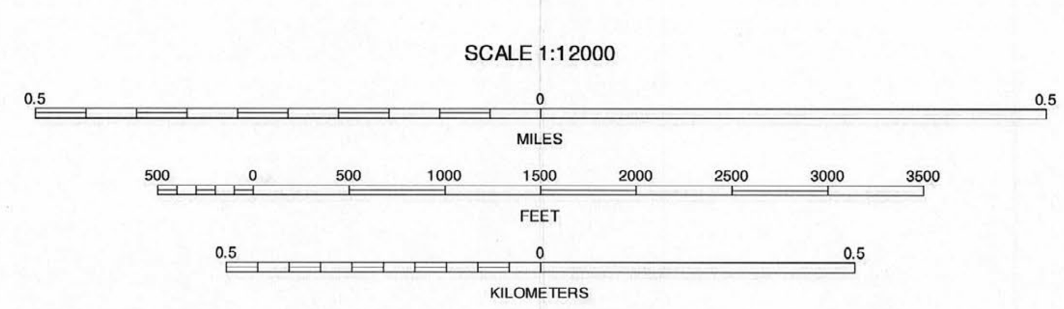
QUARTER QUADRANGLE LOCATION

SCALE 1:12000



31	32	33
40		42

31 MATTOON EAST NE
32 CHARLESTON SOUTH NW
33 CHARLESTON SOUTH NE
40 MATTOON EAST SE
42 CHARLESTON SOUTH SE

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CHARLESTON SOUTH SW, (OVERSIZED) ILLINOIS
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COLES COUNTY, ILLINOIS
CHARLESTON SOUTH SE QUADRANGLE (OVERSIZED)
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

32	33	34
41		43

32 CHARLESTON SOUTH NW
33 CHARLESTON SOUTH NE
34 WESTFIELD WEST NW
41 CHARLESTON SOUTH SW
43 WESTFIELD WEST SW

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CHARLESTON SOUTH SE, (OVERSIZED) ILLINOIS
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UNITED STATES
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COLES COUNTY, ILLINOIS
WESTFIELD WEST SW QUADRANGLE
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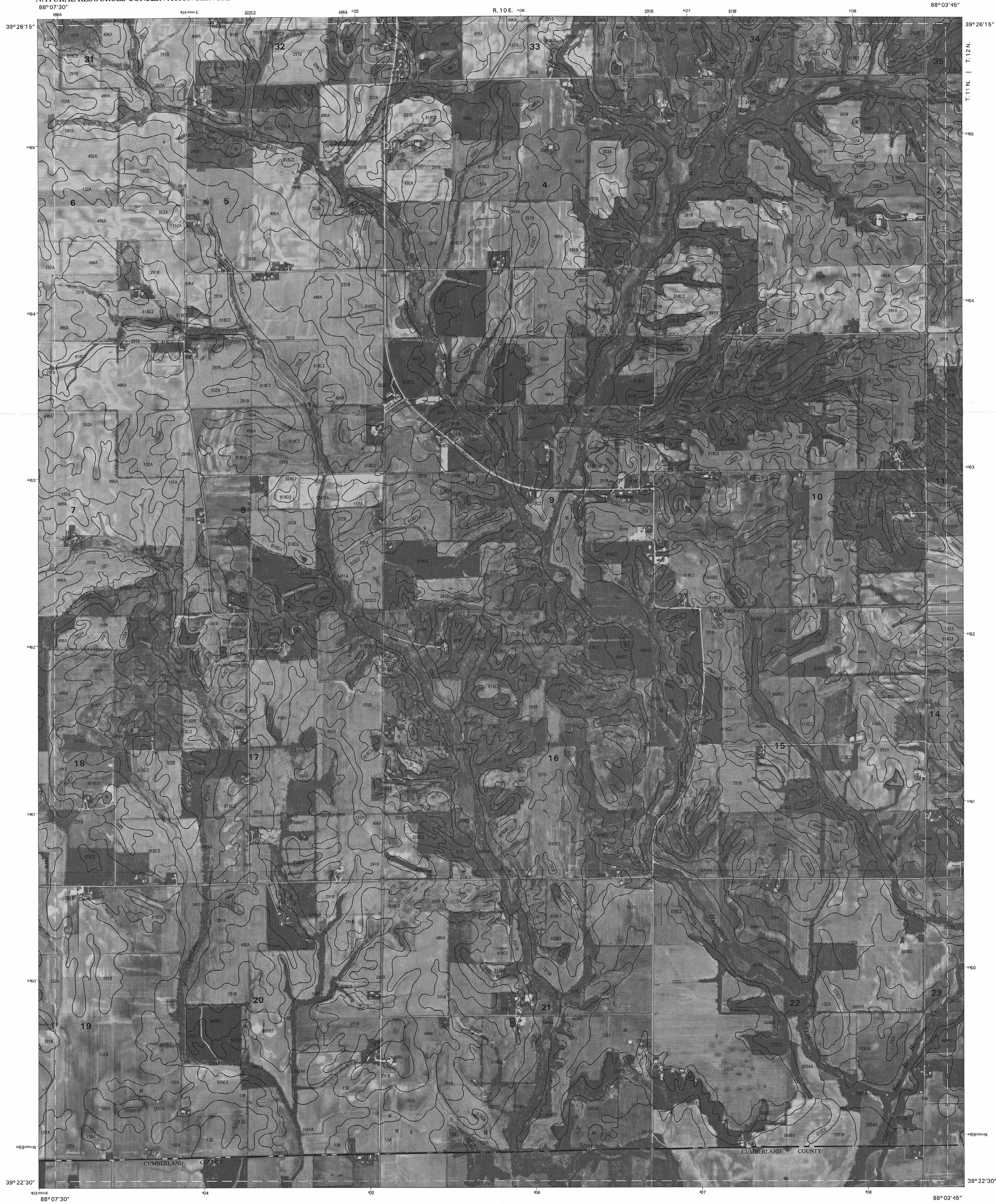

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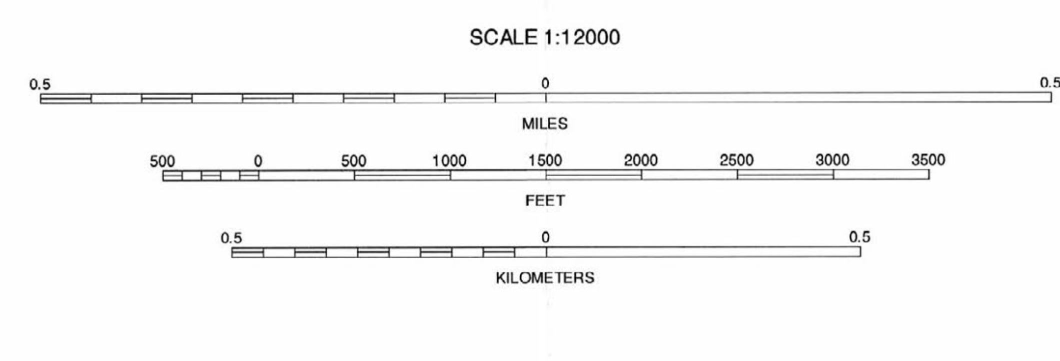
SCALE 1:12000



33	34	35
42		44

33 CHARLESTON SOUTH NE
34 WESTFIELD WEST NW
35 WESTFIELD WEST NE
42 CHARLESTON SOUTH SE
44 WESTFIELD WEST SE

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WESTFIELD WEST SW, ILLINOIS
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COLES COUNTY, ILLINOIS
WESTFIELD WEST SE QUADRANGLE
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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 — 0 — 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 — 0 — 0.5

34	35	36
43		

34 WESTFIELD WEST NW
35 WESTFIELD WEST NE
36 WESTFIELD EAST NW
43 WESTFIELD WEST SW

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